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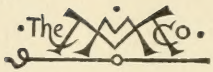
THE MEANING OF EDUCATION

AND OTHER

ESSAYS AND ADDRESSES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THE MEANING OF EDUCATION

AND OTHER

ESSAYS AND ADDRESSES

BY

NICHOLAS MURRAY BUTLER

PROFESSOR OF PHILOSOPHY AND EDUCATION
IN COLUMBIA UNIVERSITY

New York
THE MACMILLAN COMPANY
LONDON: MACMILLAN & CO., LTD.
1909

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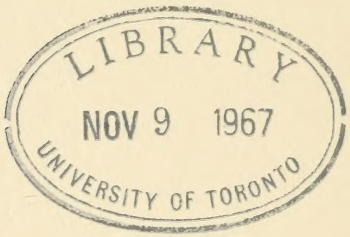
Set up and electrotyped March, 1898. Reprinted October, 1898; April, 1900; March, 1901; April, August, 1903; April, 1904; August, 1905; August, 1906; October, 1907; September, 1909.



Norwood Press
J. S. Cushing & Co. — Berwick & Smith
Norwood Mass. U.S.A.

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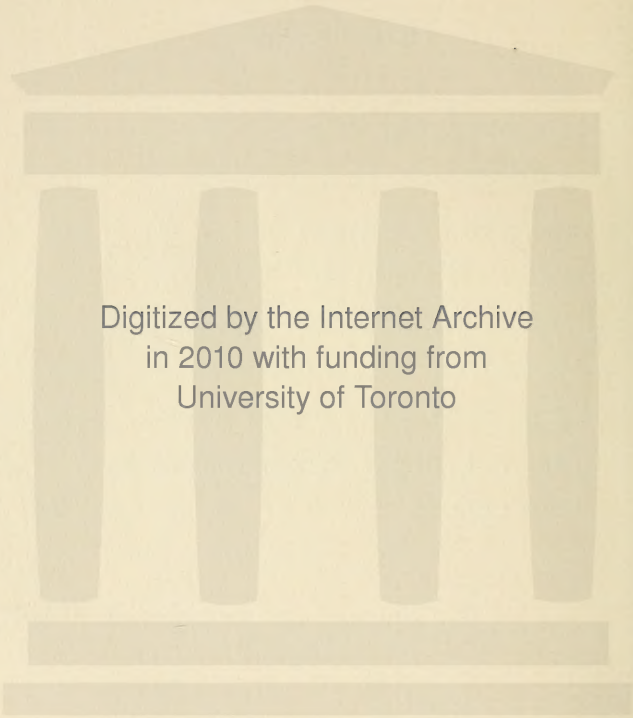
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INTRODUCTION

THE essays and addresses brought together in this volume give expression to convictions and opinions on the subject of education that have been presented during the past fifteen years, in one form or another, to hundreds of audiences, mainly of teachers, in almost every state of the Union. The belief that controls them all is threefold: first, that education, in the broad sense in which I use the term, is the most important of human interests, since it deals with the preservation of the culture and efficiency that we have inherited and with their extension and development; second, that this human interest can and should be studied in a scientific spirit and by a scientific method; and, third, that in a democracy at least an education is a failure that does not relate itself to the duties and opportunities of citizenship.

Education is sharply distinguished, therefore, from the far narrower field of instruction, as that in turn is broader than the field of school-life. To give to education its rightful place in our thinking involves relating it to the laws of life in general, and especially to those laws as viewed from the standpoint of the doctrine of evolution. This I have aimed to do by proposing an extension of the commonly received doctrine of infancy, which though as old as early Greek philosophy,[1] owes its definite statement and exemplification to Mr. John Fiske. In this way the theory of education is given what it has hitherto lacked, a distinct relationship to the facts of organic and social evolution.

A standard must next be sought by which the value of educational processes and influences may be judged. I find this standard in the conclusion, common, I am confident, to the best philosophy and to the soundest science

[1] Butler, "Anaximander on the prolongation of infancy in man," in *Classical Studies in Honor of Henry Drisler* (New York: The Macmillan Co. for the Columbia University Press, 1894).

alike, that the facts of nature must be explained, in the last resort, in terms of energy, and that energy in turn can be conceived only in terms of will, which is the fundamental form of the life of mind or spirit.

I offer these two conclusions as the basis for an educational philosophy. With them in mind I have discussed a number of concrete problems that are of present importance not to teachers alone, but to thoughtful parents and to conscientious citizens.

It is sometimes hastily objected that the attempt to formulate a scientific study of education is impossible. This objection rests upon a misunderstanding as to what a science is. Science is wholly a matter of method; it is knowledge classified, and nothing more. The knowledge so classified may be knowledge of plants, or of heavenly bodies, or of the human body, or of forms of government, or of education. Only the sciences based upon mathematics are exact or lay claim to exactness; all others are descriptive only, and wider experience or further observation may modify their conclusions at any time. A science of

education is analogous to a science of medicine. Both are built upon a group of ancillary sciences, and both arrive at conclusions that are only working hypotheses. With normal children, as with normal patients, these hypotheses, based as they are upon wide experience, require little or no modification; in abnormal cases, however, they must be modified or sometimes even abandoned. Neither medicine nor education makes any pretense to exactness.

It is highly important for the study of education that a consistent nomenclature be adopted and used, though for a variety of reasons this is a difficult task to accomplish. Bearing in mind this need, I have endeavored to mark off the several types or grades of educational institutions from each other, and to give to each its appropriate name. Many American educational problems that appear very complex, would become much simpler if the various institutions giving systematic instruction were always called each by its right name.

To the teachers of the United States, especially to those who are members of the Na-

tional Educational Association, I am under the deepest obligations for the encouragement and sympathy that have led to the publication of these essays and addresses. To the patient criticism and the kindly suggestion of my friends and colleagues, Brander Matthews and George Rice Carpenter, I owe many improvements in the form in which the papers now appear.

NICHOLAS MURRAY BUTLER

COLUMBIA UNIVERSITY, New York
March, 1898.

THE MEANING OF EDUCATION

An Address

delivered before the Liberal Club of Buffalo, New York

November 19, 1896

THE MEANING OF EDUCATION

Those who have an acquaintance, however cursory, with the history of human thought well remember how bitter and how persistent have been the controversies of philosophers and metaphysicians in respect to terms of everyday use. Discussions on such familiar words as "substance," "cause," "idea," and "matter" have shaken the schools for ages. It seems to be a fact that when a term is somewhat unusual and remote from our experience and our interest, we are apt readily to be able to assign to it a definite significance and a concrete meaning; but when it is a term with which we are familiar in our everyday experience and conversation, we often feel its significance and its import, and yet find great difficulty in defining it accurately in logical or in scientific terms.

I shall discuss the meaning of Infancy and Education just because the terms are familiar, because the ideas are commonplace, and because, as it seems to me, we so often fail to grasp their profound and far-reaching significance. The point of view from which I shall speak of them is the one given us by that remarkable generalization which has come to be known as the doctrine of evolution, a theory which we all associate with the nineteenth century, but which, nevertheless, was seen by the thinkers of the ancient world, by the lightning flashes of their genius, in what is after all very much the form in which the clear sunlight of modern scientific demonstration presents it to us. The doctrine of evolution has illuminated every problem of human thought and human action. It is a mere truism to say that it has revolutionized our thinking; but it is equally true that we have in very many cases failed to accept the consequences of the revolution and to understand them in all their important applications. It seems to me that in no department of our interest and activity is this failure more complete, speak-

ing generally, than in that which relates to the great human institution of education.

The two chief contributions that light up this doctrine from the point of view that I wish to occupy are those that were made by Mr. Alfred Russell Wallace and by Mr. John Fiske. It was Mr. Wallace who pointed out, forty odd years ago, that the theory of evolution as applied to man could sustain itself only if it were acknowledged and admitted that there came a time in the history of animal types and forms when natural selection seized upon psychical or mental peculiarities and advantages and perpetuated them rather than merely physical peculiarities and advantages. That is the first, and in a sense, perhaps, the greater of these contributions, for it has enabled us to understand the place of man in the order of the cosmos. Then, in less than a generation, the remarkable insight of Mr. John Fiske explained for us on physiological and psychological grounds the part played by the lengthening period of infancy in the animal species. It is from that doctrine of Mr. Fiske that I take my point of departure in the present argument.

We have come to understand that evolution regards us all as individual centres of activity, influenced by our surroundings and reacting upon them. We have come to understand that our physical, our mental, and our moral life is the gradual growth or development of what may be conceived of as a point travelling through an ever-widening series of circles, until, in this ripe and cultivated age, the point has come to include within the circumference that it traces, all that we call the knowledge or acquirement or culture of the educated man.

The doctrine of infancy, as it has been explained to us, relates itself directly to that figure and to that method of explanation. If we contrast or compare the lower orders of animal life with the higher, and particularly with the human species, we are at once struck by the fact that in the lower orders of existence there is no such thing as infancy. We observe that the young are brought into the world able to take care of themselves, to react upon their environment at the mere contact of air or food, to breathe, to digest,

and to live an individual existence. We are further struck by the fact, on examining the structure of animals of that kind, that there is no nervous system or organization present, except such as is necessary to carry on what are called reflex actions. There is no central storage warehouse; there is nothing corresponding to the human brain; and there is no action possible for animals of that type in which any considerable time can elapse between the impulse which comes in from the world without, and the responding or reacting movement or action on the part of the animal itself. Each of those animals lives the life of its parents. Each of those animals, young and old alike, performs certain reflex actions with accuracy, with sureness, with despatch; no one of those animals progresses, and none develops or has a history. When we pass to animals of a higher order, however, there comes a time when our attention is attracted by those that act in an entirely different way. Their actions are more complex, more numerous, more subtile, more sustained; and on turning again to the or-

ganism that accompanies this and makes it possible, we see at once that there is an increased complexity of structure which accompanies this increasing complexity of function. We find, as we study more highly organized types of animal existence, that, sooner or later, there comes a time when the offspring of a given animal comes into the world unable to perform many of the functions that become possible for it later. It brings with it a host of developed reflex actions, but it also brings with it many undeveloped potentialities. Its organization is not complete at the moment of birth; and a period of helplessness or infancy, longer or shorter, must result. In passing from the highest of the lower animals to man, we reach a most important stage in the development of infancy. In man we find the increasing bulk, and more than that, the increasing complexity, of the brain and central nervous system which accompany the complex adjustments and actions that make up life. But though the human animal is born into the world complete as to certain series of reflex actions, its lungs

able to breathe, its heart to beat, its blood vessels to contract, its glands to secrete, an immense series of adjustments remains to be made. While those adjustments are being made, there is a more or less prolonged period of helplessness or infancy.

The meaning of that period of helplessness or infancy lies, as I see it, at the bottom of any scientific and philosophical understanding of the part played by education in human life. Infancy is a period of plasticity ; it is a period of adjustment ; it is a period of fitting the organism to its environment : first, physical adjustment, and then adjustment on a far larger and broader scale. This fitting of the organism to its environment on the larger and broader scale is the field of education. In other words, nature and heredity have so organized one side of animal life that it is complete at the time of birth. A large series of adjustments to the world around us, the series of adjustments that in the case of man make up the life that is really worth living, constitutes the life of the mind or spirit. At birth, those adjustments are not yet made and they

have to be slowly and carefully acquired. We are even born into the world with our senses, "the windows of the soul," locked, uncoördinated, unadjusted, unable to perform what is eventually to be their function. It is a familiar fact that sight, hearing, and touch all have to be developed and trained and coeducated, taught to act together, before the infant can appreciate and understand the world of three dimensions in which adults live, and which they have supposed to be the only world known to the human consciousness. While that period of plasticity or adjustment lasts, there is naturally and necessarily a vast influence exerted, not only on the child but by the child.

I think Mr. Fiske is undeniably correct in saying that the prolonged period of infancy which is necessary to bring about these adjustments, lies at the foundation of the human family, and therefore at the foundation of society and of institutional life. The factor in history that has changed the human being from a gregarious animal to a man living in a monogamic family is, if anthropology and psychology teach us anything, unquestionably

the child. During this long period of helplessness and dependence, the parents of the child are kept together by a common centre of interest; and the bonds of affection and interdependence that are eventually to constitute the family are then permanently and closely knit. That period of mutual association and dependence of the parents extends at first over only eight, ten, or twelve years. If two, three, or four children are born to the same parents, it may extend over a period much longer ; it may last during one-third or even one-half of the average life of man. Out of that centre of dependence and helplessness, the family, as we know it, has grown ; and it has been constituted, so far as we can explain it at all, by the lengthening period of infancy in the animal kingdom and in the human race. I might cite fact after fact in illustration of this, from the history of science and from natural history, were it not wholly unnecessary. It is one of the most profound generalizations of our modern science; and it has enabled us to see to the very bottom of the meaning of education and to understand the biological significance of one of the

most striking and imposing of social phenomena.

This lengthening period of infancy is a period of plasticity. No animal that has not a period of infancy needs to be educated. Every animal that has a period of infancy can and must be educated. The longer the period of infancy the more education is possible for it; and as our civilization has become more complex, as its products have become more numerous, richer, deeper, and more far-reaching, the longer we have extended that period of tutelage, until now, while the physiological period of adolescence is reached in perhaps fourteen or fifteen years, the educational period of dependence is almost twice as long. That is to say, the length of time that it takes for the human child in this generation so to adapt himself to his surroundings as to be able to succeed in them, to conquer them, and to make them his own, is almost, if not quite thirty years. The education in the kindergarten, the elementary school, the secondary school, the college, the professional school, the period of apprenticeship in the profession before independent

practice can be entered upon, is in not a few cases, now twenty-five, twenty-six, twenty-eight, or even thirty years.

The rich suggestion that this doctrine of Mr. Fiske and this conception of modern science have for us, seems to me to be this: — The entire educational period after the physical adjustment has been made, after the child can walk alone, can feed itself, can use its hands, and has therefore acquired physical and bodily independence, is an adjustment to what may be called our spiritual environment. After the physical adjustment is reasonably complete, there remains yet to be accomplished the building of harmonious and reciprocal relations with those great acquisitions of the race that constitute civilization; and therefore the lengthening period of infancy simply means that we are spending nearly half of the life of each generation in order to develop in the young some conception of the vast acquirements of the historic past and some mastery of the conditions of the immediate present.

In other words, the doctrine of evolution teaches us to look upon the world around us

— our art, our science, our literature, our institutions, and our religious life — as an integral part, indeed as the essential part, of our environment; and it teaches us to look upon education as the plastic period of adapting and adjusting our self-active organism to this vast series of hereditary acquisitions. So that while the child's first right and first duty is to adjust himself physiologically to his environment, to learn to walk, to use his hands and to feed himself, to be physically independent, there still remains the great outer circle of education or culture, without contact with which no human being is really either man or woman. The child receives first, and in a short series of years, his animal inheritance; it then remains for us in the period of education to see to it that he comes into his human inheritance. When we compare the life of the lower animal, acting solely and entirely by reflex action and instinct, with the periods of infancy and of self-determined activity of the human being, developing by reflex action, instinct, and intelligence, we get some conception of the vast difference there

is between what Descartes called the animal mechanism and what we may truly look upon as the activity of the human mind.

This period of adjustment constitutes, then, the period of education; and this period of adjustment must, as it seems to me, give us the basis for all educational theory and all educational practice. It must be the point of departure in that theory and that practice, and it must at the same time provide us with our ideals. When we hear it sometimes said, "All education must start from the child," we must add, "Yes, and lead into human civilization"; and when we hear it said, on the other hand, that all education must start from the traditional past, we must add, "Yes, and be adapted to the child." We shall then understand how the great educational temple of modern times into which every civilized nation is pouring out its strength and its treasure, rests upon the two corner-stones of the physical and psychical nature of the child and the traditional and hereditary civilization of the race; and how it is that the problem of the family, of the school, and of

the home, is to unite those two elements so that each shall possess the other. We shall then have a conception of education which is in accord with the doctrine of evolution and which is in accord with the teachings of modern science and of modern philosophy.

After the child comes into the enjoyment of his physical inheritance, he must be led by the family, the school, and the state into his intellectual or spiritual inheritance. The moment that fact is stated in those terms it becomes absolutely impossible for us ever again to identify education with mere instruction. It becomes absolutely impossible for us any longer to identify education with mere acquisition of learning; and we begin to look upon it as really the vestibule of the highest and the richest type of living. It was the great thought of Plato, that inspired every word he ever wrote and that constitutes an important portion of his legacy to future ages, that life and philosophy are identical; but he used the word philosophy in a sense which was familiar to him and to his time, and for which we might very well

substitute, under some of its phases at least, the word education. Life and education are identical, because the period to which we traditionally confine the latter term is merely the period of more formal, definite, determinate adjustment; yet, just so long as life lasts and our impressionability and plasticity remain, we are always adapting ourselves to this environment, gaining power, like Antæus of old, each time we touch the Mother Earth from which civilization springs.

If education cannot be identified with mere instruction, what is it? What does the term mean? I answer, it must mean a gradual adjustment to the spiritual possessions of the race. Those possessions may be variously classified, but they certainly are at least fivefold. The child is entitled to his scientific inheritance, to his literary inheritance, to his æsthetic inheritance, to his institutional inheritance, and to his religious inheritance. Without them he cannot become a truly educated or a cultivated man.

He is entitled to his scientific inheritance. In other words, he is entitled to go out into

nature, to love it, to come to know it, to understand it; and he is entitled to go out into it, not only as the early Greek and Oriental thinkers went, with fear and trembling and worship, but he is entitled to go out into it armed with all the resources of modern scientific method and all the facts acquired by modern research. He is entitled to know how it was that we have passed from the world known to the heroes of the Iliad to the world as we know it to-day. He is entitled to know how the heavens have declared their glory to man, and how the worlds of plant and animal and rock have all come to unfold the story of the past and to enrich us with the thought and the suggestion of the intelligence, the design, the order that they manifest. There can be no sound and liberal education that is not based in part upon the scientific inheritance of the race. The learning of the multiplication table, the learning of the necessary preliminary definitions, the learning of the necessary methods of research and practice — all these are the lower steps of the ladder, the needful steps by which we must mount; and yet they are the

steps from which how often we fall back without having gained any vision whatever of the land to which they are supposed to lead! The scientific inheritance is one of the very first elements of a modern liberal education, because it is that element which presents itself earliest to the senses of the child. It is the element with which he comes in immediate sense-contact; to which he can be first led; from which he may be made to understand and draw lessons of the deepest significance for his life and for that adaptation which is his education.

Next there is the vast literary inheritance, the phase of the past that mankind has during twenty-five hundred years most loved to dwell upon. It is the side that has captivated the imagination, enshrined itself in language, and brought itself closest to the heart of cultivated man, — going back to the earliest attempts at mythology and coming down to the great poetry and the great prose of the eighteenth and nineteenth centuries in modern tongues. We have gone so far as to call this aspect of civilization the "humanities," because most of

all it seems to bear upon its surface the significance of that fine old word *humanitas* which was once the ideal of liberal education. "Humanities" these studies undoubtedly are, but *humanitas* is a broader term still, and in its full significance must be made to include all our inheritance, scientific, æsthetic, institutional, and religious, as well as literary. Just as scientific method is the gate to the scientific inheritance and therefore must in essence at least be mastered, so language is the gate to the literary inheritance and must be mastered at the earliest opportunity. We are accustomed, as a rule, to estimate and weigh power and culture in terms of language. The mastery of various languages, the mastery even of the mother tongue, is often taken as the sole test of culture. That is our tribute to its great importance. We see how easily the mastery of a language, or of more than one, lends itself to this conception of education as an adaptation, as an adjustment, to the spiritual environment of the race.

Language is the crystallized thought of the past. It contains in itself, in its products and

its forms, in its delicate discriminations, its powers of comparison and abstraction, a record of the progress of the thought of the race. When we are plodding through dreary details of grammar and of rhetoric we are again on the lower rungs of the ladder, the multiplication table of the literary inheritance, the steps that must be taken if we are to come to understand what the great world-poets and seers have revealed to us. Therefore it is that we are to-day putting the literary inheritance side by side with the scientific in the very earliest years of the education of the child. In the education that is sometimes called "new," it will be found that the early linguistic exercises are almost always based upon something that is really worth knowing for its own sake. Our literatures the world over, ancient and modern, are so rich, so full of thought and feeling and action, that there is no time to waste in the merely formal exercises of grammatical drill upon lifeless material, when we may be occupying ourselves, in those same exercises and for the same purpose of discipline, with material

that enriches the human mind and touches and refines the human heart. Modern education in its adjustments is bringing the child into his literary inheritance in a new spirit. That inheritance has always been before mankind. In the Middle Ages, in early modern education, in European education to-day, the study of language and literature is and has been the main element in instruction. It must always hold a prominent place in education, for it admits of no substitute. Yet it is mere narrowness to say that this study alone is sufficient, and that it excludes everything else. It should come side by side with the scientific inheritance in the early life of the child, during the period of plasticity or education.

The third element in education is the æsthetic inheritance, that feeling for the beautiful, the picturesque, and the sublime that has always been so great a part of human life, that contributes so much to human pleasure and accentuates so much of human pain and suffering. The ancient Greeks understood and used it, but a false and narrowing philosophy thrust it out of life and education for cen-

turies because it was supposed to antagonize the spiritual or religious life. It was believed that the spirit could be chastened only by privation and by pain, by tearing it away from one whole side of human civilization, and by insisting that the human heart should suppress its feeling, its longing for the ideal in the realm of feeling and of beauty. The closet philosophers could accomplish their end in education for a time, but they were utterly unable to suppress the builders of the Gothic cathedrals or the Italian painters of the Renaissance, and they have been unable to suppress the artistic element in human life. To-day we find it coming back to occupy its appropriate place. We should no longer think of applying the word cultivated to a man or woman who had no æsthetic sense, no feeling for the beautiful, no appreciation of the sublime, because we should be justified in saying, on all psychological grounds, that that nature was deficient and defective. This great aspect of civilization, this great tide of feeling that ebbs and flows in every human breast, which makes even the dull and inappreciative peasant uncover his

head as he passes through the wonderful galleries of the Vatican or the Louvre — this, too, is a necessary factor in adjusting ourselves to the full richness of human conquest and human acquisition. Unless we are to be mere hewers of wood and drawers of water, we should see to it that the æsthetic inheritance is placed side by side with the scientific and the literary in the education of the human child. To-day we find art creeping into the schoolroom; instruction in color, in form, in expression is being given. The growing child is surrounded with representations of the classic in art, and so, unconsciously and by imitation, he is being taught to adapt and adjust himself to this once forgotten and now recovered element in human civilization; an element that certainly is, like the scientific and literary elements, an integral part of the child's inheritance.

Then there is also the wonderful institutional inheritance, most wonderful of all, because it brings us into immediate contact with the human race itself. This is the element of civilization before which we must, for the mo-

ment, sink differences of scientific opinion, differences of literary appreciation, differences of æsthetic judgment, and in which we look upon individual man as but a member of a larger whole, in order to understand what human civilization really means. We have always had before us, in the history of civilization, two extreme types of thought and opinion as to human institutions. We have had the view typified in modern philosophy by Rousseau, and wrought out in the streets of Paris from 1789 to 1794. This is, substantially, the view that every individual is sufficient unto himself. It is the view of the ancient Sophists, once combated by Socrates in the streets of Athens, that there are as many truths as there are men to perceive truth, and that each individual is the sole arbiter of his own fortunes. This is what I may call the atomic view of human society, which would blow all of our institutional life into millions of atoms and deify each. That view has failed to work itself out successfully in history ; when it has had a momentary victory it has simply been because it came as a reaction against the

tyranny of the opposite extreme. We have had the other extreme also. We have had the view which insists that no individual is of any consequence or importance in the presence of the mass; the view that all individual peculiarity, all individual power or acquisition, must be pressed down and trampled under foot for the advantage of the whole. We have seen it in the civilization of China in the interest of ancestor worship; we have seen it in the civilization of India in the interest of the caste system; we have seen it in the civilization of Egypt in the interest of the priestly class; and we have seen those three civilizations wither and die.

We have come to understand, again following the seed-thought of the Greeks, that the true line of institutional progress lies between the two extremes; that that conception of our institutional life is the true one which regards each of us as a unit but still as a part of a larger unit, which regards each of us as entitled to liberty but in subordination to law. We have come to regard this as the last lesson of a political philosophy that is based

upon a study of human history and of human nature. The conception of liberty under the law, allowing a field for every human activity to develop and enrich itself without pulling down its fellow, all coöperating toward a common end, typifies and explains, better than any extreme theory of philosopher or sciolist, the institutional life of the race. We look back and see how that institutional life has been developed. We see the right of private property, the common law, the state, the church, the freedom of the press, education, — one great institution after another emerging from the mist of indefiniteness and taking its part in the structure of our modern life; and we say at once that no liberal education can be complete that does not include some comprehension of all that. Unless the child understands that though he is an individual he is also a member of the body politic, of an institutional life in which he must give and take, defer and obey, adjust and correlate, and that without all this there can be no civilization and no progress, we are thrown back into the condition either of anarchy — the anarchy of Rousseau — or the

collectivism and stagnation of China, India, and Egypt. We have wrested that institutional life from history and it is going to-day into the education of children all over the civilized world. In this way they are being given their institutional inheritance ; they are being given some insight not alone into their rights, which are so easy to teach, but into their duties, which are so easy to forget ; and the institutional life that carries with it lessons of duty, responsibility, and the necessity for coöperation in the working out of high ideals, is being put before children wherever sound education is given to-day, from the kindergarten to the university.

Finally, there is the religious inheritance of the child. No student of history can doubt its existence and no observer of human nature will undervalue its significance. We are still far from comprehending fully the preponderant influence of religion in shaping our contemporary civilization ; an influence that is due in part to the universality of religion itself, and in part to the fact that it was, beyond dispute, the chief human interest at the time when the foundations of our present

superstructure were being laid. It has played a controlling part in education till very recently, although it has too often played that part in a narrow, illiberal, and uninformed spirit. The progress of events during the nineteenth century, however, has resulted in greatly altering the relation of the religious influence in education, — at first to education's incalculable gain, and, more recently, to education's distinct loss. The growing tendency toward what is known as the separation of church and state, but what is more accurately described as the independence of man's political and religious relationships, and, concurrently, the development of a public educational conscience which has led the state to take upon itself a large share of the responsibility for education, have brought about the practical exclusion of the religious element from public education. This is notably true in France and in the United States. In the state school system of France, all trace of religious instruction has been lacking since 1882; and it is hard to dignify with the names influence or instruction the wretchedly formal

religious exercises that are gone through with in American public schools.

The result of this condition of affairs is that religious teaching is rapidly passing out of education entirely; and the familiarity with the English Bible as the greatest classic of our tongue, that every cultivated man owes it to himself to possess, is becoming a thing of the past. Two solutions of the difficulty are proposed. One is that the state shall tolerate all existing forms of religious teaching in its own schools, time being set apart for the purpose. The other is that the state shall aid, by money grants, schools maintained by religious or other corporations. Neither suggestion is likely to be received favorably by the American people at present, because of the bitterness of the war between the denominational theologies. Yet the religious element may not be permitted to pass wholly out of education unless we are to cripple it and render it hopelessly incomplete. It must devolve upon the family and the church, then, to give this instruction to the child and to preserve the religious insight from loss. Both

family and church must become much more efficient, educationally speaking, than they are now, if they are to bear this burden successfully. This opens a series of questions that may not be entered upon here. It is enough to point out that the religious element of human culture is essential; and that, by some effective agency, it must be presented to every child whose education aims at completeness or proportion.

The period of infancy is to be used by civilized men for adaptation along these five lines, in order to introduce the child to his intellectual and spiritual inheritance, just as the shorter period of infancy in the lower animals is used to develop, to adjust, and to co-ordinate those physical actions which constitute the higher instincts, and which require the larger, the more deeply furrowed, and the more complex brain.

That, as it seems to me, is the lesson of biology, of physiology, and of psychology, on the basis of the theory of evolution, regarding the meaning and the place of education in modern life. It gives us a conception of education

which must, I am quite sure, raise it above the mechanical, the routine, the purely artificial. We see that this period of preparation is not a period of haphazard action, a period of possible neglect, or a period when time may be frittered away and lost, but that every moment of adjustment is precious and that every new adaptation and correlation is an enrichment not only of the life of the individual but of the life of the race. For now we all understand perfectly well that this long period of infancy and adaptation, this period of plasticity and education, is that which makes progress possible. That is why it is entirely correct to say that each generation is the trustee of civilization. Each generation owes it to itself and to its posterity to protect its culture, to enrich it and to transmit it. The institution that mankind has worked out for that purpose is the institution known as education. When a child has entered into this inheritance, first physical, then scientific, literary, æsthetic, institutional, and religious, then we use the word culture to signify the state that has been attained.

The word culture is very modern. It is used in its present sense only during the latter portion of the eighteenth century and during our own. It owes its present significance largely to Goethe and to Herder, the two men who did most to make it familiar in its modern sense. But while the word may be new, the conception itself is old. It is the *παιδεία* of the Greeks, the *humanitas* of the Romans; and after all it expresses pretty much what the patrician Roman, dwelling in his country house, had in mind when he sent his boy, after giving him some instruction in agriculture, in law, and in military duty, to the great city of Rome itself in order to obtain *urbanitas*, city-ness. We have softened that word down until it means merely polished manner, but when the Romans first used it they meant by it pretty much what we mean by culture. The conception of culture is old, therefore; it has always been before the idealists of the human race from the earliest times. We have given to this new word rich, full, and diversified meaning, based, as I say, upon the knowledge of the child and upon the

knowledge of the historic past. When we use it in that sense, we are using it, as we may properly, to indicate the ideal of our modern education.

WHAT KNOWLEDGE IS OF MOST WORTH?

Presidential Address
delivered before the
National Educational Association
at Denver, Colorado, July 9, 1895

WHAT KNOWLEDGE IS OF MOST WORTH?

The student of history is struck with the complexity of modern thought. From the dawn of philosophy to the great Revival of Learning the lines of development are comparatively simple and direct. During that period one may trace, step by step, the evolution of the main problems of thought and action, and discover readily how the theories of the seers stood the test of application by the men of deeds. At Athens during the great fifth century the inner life was the chief part of life itself. In that age of the world life was simple; and often, because of its refinement and independence, more reflective than with us. Men's ideals were more sharply defined and more easily realizable. They did not doubt that the world existed for them and

their enjoyment. Even that relatively advanced stage of human culture of which Dante is the immortal exponent, believed, as Mr. John Fiske says,[1] that "this earth, the fair home of man, was placed in the centre of a universe wherein all things were ordained for his sole behoof: the sun to give him light and warmth, the stars in their courses to preside over his strangely checkered destinies, the winds to blow, the floods to rise, or the fiend of pestilence to stalk abroad over the land — all for the blessing, or the warning, or the chiding, of the chief among God's creatures, Man." With such a conception as this, theory and practice could be closely related. In the ancient world it was not unusual to find the thought of the disciple guided implicitly by the maxim of the master. Γνῶθι σεαυτόν and *Nil admirari* were preached by the early philosophers in the confident belief that they could be practised by him who would.

In these modern days all this is changed. Man has come to doubt not only his supremacy in the universe, but even his importance. He

[1] *The destiny of man* (Boston, 1887), p. 12.

finds that, far from dwelling at the centre of things, he is but "the denizen of an obscure and tiny speck of cosmical matter quite invisible amid the innumerable throng of flaming suns that make up our galaxy." A flood of new knowledge has appealed to human sympathy and interest, and has taxed them to the utmost. Galileo with his telescope has revealed to us the infinitely great; and the compound microscope of Jansen has created, as out of nothing, the world of the infinitely small. Within a generation or two biology has been created; and physics, chemistry, and geology have been born again. The first wave of astonishment and delight at these great revelations has been succeeded by one of perplexity and doubt in the presence of the wholly new problems that they raise. The old self-assurance is lost. Men first stumble, blinded by the new and unaccustomed light, and then despair. The age of the faith and assured conviction of Aquinas was followed by the bold and cynical scepticism of Montaigne; and this in turn — for scepticism has never afforded a resting-place for the human spirit for more than a

moment — has yielded to the philosophy of disenchantment and despair of a Schopenhauer and the morbidly acute and unsatisfying self-analysis of an Amiel. Already it is proclaimed by Nordau and his school that we are in an age of decadence, and that many of our contemporary interpreters of life and thought — Wagner, Tolstoi, Ibsen, Zola, the pre-Raphaelites — are fit subjects for an insane asylum. Mankind is divided into warring camps, and while electricity and steam have bound the nations of the earth together, questions of knowledge and of belief have split up every nation into sects. In all this tumult it is difficult to catch the sound of the dominant note. Each suggested interpretation seems to lead us further into the tangled maze, where we cannot see the wood for the trees. Standards of truth are more definite than ever before; but standards of worth are strangely confused, and at times even their existence is denied.

Amid all this confusion, however, a light has been growing steadily brighter for those who have eyes to see. In our own century two great masters of thought have come forward,

offering, like Ariadne of old, to place in our hands the guiding thread that shall lead us through the labyrinth — the German Hegel and the Englishman Herbert Spencer. And as the century closes, amid the din of other and lesser voices, we seem to hear the deeper tones of these two interpreters swelling forth as representative of the best and most earnest endeavors, from two totally different points of view, of human seekers after light. Each has taken the whole of knowledge for his province, each has spread out before us a connected view of man and his environment, and each would

> ". . . assert Eternal Providence
> And justify the ways of God to men."

These great teachers typify the catholicity and the scientific method that are so characteristic of the best expressions of our modern civilization. Whatever of insight we have gained into history, into philosophy, into art, and into nature, they have incorporated in their systematic thinking and have endeavored to illumine with the light of their controlling principles. Hegel, schooled in the teachings of Kant and

Fichte, and coming early to an appreciation of the seed-thought of Plato and Aristotle, Bruno and Spinoza, has taught us in unmistakable language that independent, self-active being is the father of all things. Spencer, feeling the thrill of that unity which makes the cosmos one, and receiving from Lamarck and von Baer the hint that led him to see that the life of the individual furnishes the clew to the understanding of the life of the aggregate, whether natural or social, has formulated into a single and irrefutable law of progress the terms of that development, or evolution, which has been more or less dimly before the mind of man since thought began. The German with his principle of self-activity, and the Englishman with his law of evolution, offer us a foothold for our knowledge and our faith, and assure us that it will safely support them. From the one we learn the eternal reasonableness of all that is or can be, while the other teaches us the character of the process by which the visible universe, that every day presents new wonders to our gaze, has been builded out of the primeval star-dust. At

their hands the two sublime and awe-inspiring verities of Kant — the starry heavens above and the moral law within — find their places in the life of the spirit, and together testify to its eternity and its beauty.

Despite the fact that our age is one of unexampled scientific and industrial progress, yet nothing in all our modern scientific activity is more striking than the undisputed primacy of thought — thought not in antagonism to sense, but interpretative of the data of sense. Idealism, shorn of its crudities and its extravagances, and based on reason rather than on Berkeley's analysis of sense-perception, is conquering the world. What Plato saw, Descartes, Leibniz, Kant, and Hegel have demonstrated. The once-dreaded materialism has lost all its terrors. Science itself has analyzed matter into an aggregate of dynamical systems, and speaks of energy in terms of will. The seemingly inert stone that we grasp in our hand is in reality an aggregate of an infinite number of rapidly-moving centres of energy. Our own will is the only energy of whose direct action we

are immediately conscious, and we use our experience of it to explain other manifestations of energy to ourselves. Modern mathematics, that most astounding of intellectual creations, has projected the mind's eye through infinite time and the mind's hand into boundless space. The very instants of the beginnings of the sun's eclipses are predicted for centuries and æons to come. Sirius, so distant that the light from its surface, travelling at a rate of speed that vies with the lightning, requires more than eight and one-half years to reach us, is weighed, and its constituents are counted almost as accurately as are the bones of our bodies. Yet in 1842 Comte declared that it was forever impossible to hope to determine the chemical composition or the mineralogical structure of the stars. An unexpected aberration in the motions of Uranus foretold an undiscovered planet at a given spot in the sky, and the telescope of Galle, turned to that precise point, revealed to the astonished senses what was certain to thought. But yesterday a discrepancy in the weight of nitrogen extracted from the air we

breathe, led Lord Rayleigh, by an inexorable logic, to the discovery of a new atmospheric constituent, argon. The analytical geometry of Descartes and the calculus of Newton and Leibniz have expanded into the marvellous mathematical method — more daring in its speculations than anything that the history of philosophy records — of Lobachevsky and Riemann, Gauss and Sylvester. Indeed, mathematics, the indispensable tool of the sciences, defying the senses to follow its splendid flights, is demonstrating to-day, as it has never been demonstrated before, the supremacy of the pure reason. The great Cayley — who has been given the proud title of the Darwin of the English school of mathematicians — said a few years ago:[1] "I would myself say that the purely imaginary objects are the only realities, the ὄντως ὄντα, in regard to which the corresponding physical objects are as the shadows in the cave; and it is only by means of them that we are able to deny the existence of a correspond-

[1] *Presidential address, British Association for the Advancement of Science*, Southport, 1883.

ing physical object; and if there is no conception of straightness, then it is meaningless to deny the conception of a perfectly straight line."

The physicist, also, is coming to see that his principle of the conservation of energy in its various manifestations is a new and startling proof of the fundamental philosophical principle of self-activity. Energy manifests itself as motion, heat, light, electricity, chemical action, sound. Each form of its manifestation is transmutable into others. The self-active cycle is complete.

But it is not from the domain of natural science alone that illustrations of the all-conquering power of thought can be drawn. The genius of Champollion has called to life the thoughts and deeds of Amenotep and Rameses; and what appeared to sense as rude decorative sketches on the walls of temple and of tomb are seen by the understanding to be the recorded history of a great civilization in the valley of the Nile. The inscrutable Sphinx, that watchdog of the Pyramids, "unchangeable in the midst of change," which

sat facing the coming dawn for centuries before the storied siege of Troy, now looks down on modern men who write the very words of its builders in the language of Shakspere and of Milton. The cries of savage man, the language-symbols of the early Aryans, and the multiform and complicated tongues of modern Europe, all so seemingly diverse to the ear and to the eye, have been the foundation for the sure laws of comparative philology that the labors of Bopp and Grimm and Verner have erected upon them. All these, and the many triumphs like them, are victories of insight; each marks a new stage in the conquering progress of the reason, by which it finds itself in every part and in every phase of the cosmos and its life.

The insight as to self-activity and the primacy of reflective thought, I regard as the profoundest that philosophy has to offer; and, instead of being urged, as in centuries past, in antagonism to the teachings of science, it is now becoming the joint conclusion of philosophy and science together. It is thought that

pulsates in the world's grandest poetry and in its most exquisite art. It is the very soul of the verse of Homer and of Dante, of Shakspere and of Goethe. It makes the marble of Phidias glow with life, and it guides the hands of Raphael and Michael Angelo as they trace their wondrous figures with the brush. It gives immortality to the most beautiful of temples, the Parthenon; and it is the inspiration of that superb mediæval architecture, which bears the name of the conquerors of Rome, and which has given to Northern Europe its grandest monuments to the religious aspiration and devotion of the Middle Ages.

What, then, does this primacy of thought signify, and what is its bearing upon our educational ideals? Obviously the possession of a conclusion such as this, wrested from nature by the hand of science and from history by that of philosophy, must serve in many ways to guide us in estimating the importance of human institutions and of educational instruments. We cannot accept either of these, without question, from the hands of a tradition to which our

modern philosophy and our modern science were wholly unknown; nor can we blindly follow those believers in a crude psychology who would present us with so many mental faculties to be trained, each by its appropriate formal exercise, as if they were sticks of wood to be shaped and reduced to symmetry and order. Mental life, as Wundt so forcibly says, "does not consist in the connection of unalterable objects and varying conditions: in all its phases it is process; an active, not a passive, existence; development, not stagnation."[1] Herein is mental life true to nature. Like nature, it is not fixed, but ever changing, and this unceasing change, necessary to both growth and development, gives to life both its reality and its pathos. It gives also to education its unending character, and to mankind the clew to education's wisest processes.

The question that I am asking — what knowledge is of most worth? — is a very old one, and the answers to it which have been handed down through the centuries are many

[1] *Lectures on human and animal psychology* (New York, 1894), p. 454.

and various. It is a question which each age must put to itself, and answer from the standpoint of its deepest and widest knowledge. The wisest philosophers have always seen, more or less clearly, the far-reaching character of the question and the great importance of the answer. Socrates and Plato, Augustine and Aquinas, were under no illusions as to it; but often in later years the deeper questions relating to the relative worth of subjects of study have been either entirely lost sight of or very superficially dealt with. Bacon clothes in attractive axiomatic form some very crude judgments as to the relative worth of studies. Rousseau outlines an educational programme that ruined his reputation for sobriety of judgment. Herbert Spencer turns aside for a moment from his life-work to apotheosize science in education, although science is, by his own definition, only partially unified knowledge. Whewell exalts mathematics in language only less extravagant than that in which Sir William Hamilton decries it. In similar fashion, others, holding a brief for some particular phase or department of knowledge,

have come forward crying Eureka! and proclaiming that the value of all studies must be measured in terms of their newly-discovered standard. The very latest cry is that studies and intellectual exercises are valuable in proportion as they stimulate enlarged brain-areas, thus making the appreciation of Shakspere, of Beethoven, and of Leonardo da Vinci solely a function of the circulation of the blood.

But to sciolists of this type philosophy and science can now make common answer. If it be true that spirit and reason rule the universe, then the highest and most enduring knowledge is of the things of the spirit. That subtle sense of the beautiful and the sublime which accompanies spiritual insight, and is part of it, — this is the highest achievement of which humanity is capable. It is typified, in various forms, in the verse of Dante and the prose of Thomas à Kempis, in the Sistine Madonna of Raphael, and in Mozart's Requiem. To develop this sense in education is the task of art and literature, to interpret it is the work of philosophy, and to nourish it the function of religion. Because it most

fully represents the higher nature of man, it is man's highest possession, and those studies that directly appeal to it and instruct it are beyond compare the most valuable. This has been eloquently and beautifully illustrated by Brother Azarias. "Take a Raphael or a Murillo," he says.[1] "We gaze upon the painted canvas till its beauty has entered our soul. The splendor of the beauty lights up within us depths unrevealed, and far down in our inner consciousness we discover something that responds to the beauty on which we have been gazing. It is as though a former friend revealed himself to us. There is here a recognition. The more careful has been our sense-culture, the more delicately have our feelings been attuned to respond to a thing of beauty and find in it a joy forever, all the sooner and the more intensely do we experience this recognition. And therewith comes a vague yearning, a longing as for something. What does it all mean? The recognition is of the ideal." Toward the full recognition and appreciation

[1] *Phases of thought and criticism* (New York, 1892), pp. 57, 58.

of this insight into the great works of the spirit, whether recorded in literature, in art, or in institutional life, higher education should bend all its energies. The study of philosophy itself, or the truly philosophic study of any department of knowledge — however remote its beginnings may seem to be — will accomplish this end. The ways of approach to this goal are as many as there are human interests, for they are all bound together in the bonds of a common origin and a common purpose. The attainment of it is true culture, as Matthew Arnold has defined it: "the acquainting ourselves with the best that has been known and said in the world, and thus with the history of the human spirit."[1]

We now come in sight of the element of truth and permanence in that Humanism which Petrarch and Erasmus spread over Europe with such high hopes and excellent intentions; but which Sturm, the Strassburg schoolmaster, reduced to the dead, mechanical forms and the crude verbalism that bound the schools in fetters for centuries. Of Humanism itself we

[1] Preface to *Literature and dogma* (New York, 1889), p. xi.

may say, as Pater says of the Renaissance of the fifteenth century, that "it was great rather by what it designed than by what it achieved. Much which it aspired to do, and did but imperfectly or mistakenly, was accomplished in what is called the *éclaircissement* of the eighteenth century, or in our own generation; and what really belongs to the revival of the fifteenth century is but the leading instinct, the curiosity, the initiatory idea."[1]

Many of the representative Humanists were broad-minded men whose sympathies were with learning of every kind. Erasmus himself writes with enthusiasm of other branches of knowledge than literature. "Learning," he says, "is springing up all around out of the soil; languages, physics, mathematics, each department thriving. Even theology is showing signs of improvement."[2] But unfortunately this broad sympathy with every field of knowledge was not yet widespread. The wonders and splendor of nature that had brought into exist-

[1] Pater, *The renaissance* (New York, 1888), p. 34.

[2] Froude, *Life and letters of Erasmus* (New York, 1894), p. 186.

ence the earliest religions and the earliest philosophies were now feared and despised as the basis of paganism ; and on wholly false grounds a controversy was precipitated as to the relative worth of literature and of science that in one form or another has continued down to our own day. The bitterness with which the controversy has been carried on, and the extreme positions assumed by the partisans of the one side or the other, have concealed from view the truth that we are now able to perceive clearly — the truth that the indwelling reason, by whom all things are made, is as truly present, though in a different order of manifestation, in the world of nature as in the world of spirit. One side of this truth was expressed by Schelling when he taught that nature is the embryonic life of spirit, and by Froebel when he wrote, "The spirit of God rests in nature, lives and reigns in nature, is expressed in nature, is communicated by nature, is developed and cultivated in nature."[1] The controversy as to the educational value of science, so far, at least,

[1] *Education of man*, translated by W. N. Hailmann, (New York, 1887), p. 154.

as it concerns educational standards and ideals, is, then, an illusory one. It is a mimic war, with words alone as weapons, that is fought either to expel nature from education or to subordinate all else in education to it. We should rather say, in the stately verse of Milton :

> "Accuse not Nature: she hath done her part;
> Do thou but thine."

And that part is surely to study nature joyfully, earnestly, reverently, as a mighty manifestation of the power and grandeur of the same spirit that finds expression in human achievement. We must enlarge, then, our conception of the humanities, for humanity is broader and deeper than we have hitherto suspected. It touches the universe at many more points than one ; and, properly interpreted, the study of nature may be classed among the humanities as truly as the study of language itself.

This conclusion, which would welcome science with open arms into the school and utilize its opportunities and advantages at every

stage of education, does not mean that all studies are of equal educational value, or that they are mutually and indifferently interchangeable, as are the parts of some machines. It means rather that the study of nature is entitled to recognition on grounds similar to those put forward for the study of literature, of art, and of history. But among themselves these divisions of knowledge fall into an order of excellence as educational material that is determined by their respective relations to the development of the reflective reason. The application of this test must inevitably lead us, while honoring science and insisting upon its study, to place above it the study of history, of literature, of art, and of institutional life. But these studies may not for a moment be carried on without the study of nature or in neglect of it. They are all humanities in the truest sense, and it is a false philosophy of education that would cut us off from any one of them or that would deny the common ground on which they rest. In every field of knowledge what we are studying is some law or phase of energy, and the original as well as

the highest energy is will. In the world of nature it is exhibited in one series of forms, those which produce the results known to us as chemical, physical, biological; in the history of mankind, it is manifested in the forms of feelings, thoughts, deeds, institutions. Because the elements of self-consciousness and reflection are present in the latter series and absent in the former, it is to these and the knowledge of them that we must accord the first place in any table of educational values.

But education, as Mr. Froude has reminded us,[1] has two aspects. "On one side it is the cultivation of man's reason, the development of his spiritual nature. It elevates him above the pressure of material interests. It makes him superior to the pleasures and pains of a world which is but his temporary home, in filling his mind with higher subjects than the occupations of life would themselves provide him with." It is this aspect of education that I have been considering, for it is from this aspect that we derive our inspiration and our

[1] *Short studies on great subjects* (New York, 1872), II, 257.

ideals. "But," continues Mr. Froude, "a life of speculation to the multitude would be a life of idleness and uselessness. They have to maintain themselves in industrious independence in a world in which it has been said there are but three possible modes of existence — begging, stealing, and working; and education means also the equipping a man with means to earn his own living." It is this latter and very practical aspect of education that causes us to feel at times the full force of the question of worth in education. Immediate utility makes demands upon the school which it is unable wholly to neglect. If the school is to be the training-ground for citizenship, its products must be usefully and soundly equipped as well as well disciplined and well informed. An educated proletariat — to use the forcible paradox of Bismarck — is a continual source of disturbance and danger to any nation. Acting upon this conviction, the great modern democracies — and the time seems to have come when a democracy may be defined as a government, of any form, in which public opinion habitually rules — are

everywhere having a care that in education provision be made for the practical, or immediately useful. This is as it should be, but it exposes the school to a new series of dangers against which it must guard. Utility is a term that may be given either a very broad or a very narrow meaning. There are utilities higher and utilities lower, and under no circumstances will the true teacher ever permit the former to be sacrificed to the latter. This would be done if, in its zeal for fitting the child for self-support, the school were to neglect to lay the foundation for that higher intellectual and spiritual life which constitutes humanity's full stature. This foundation is made ready only if proper emphasis be laid, from the kindergarten to the college, on those studies whose subject-matter is the direct product of intelligence and will, and which can, therefore, make direct appeal to man's higher nature. The sciences and their applications are capable of use, even from the standpoint of this higher order of utilities, because of the reason they exhibit and reveal. Man's rational freedom is the goal, and the

sciences are the lower steps on the ladder that reaches to it.

A splendid confirmation of this view of science is found in the great Belfast address in which Professor Tyndall stormed the strongholds of prejudice one and twenty years ago. Said Professor Tyndall:[1]

"Science itself not unfrequently derives motive power from an ultra-scientific source. Some of its greatest discoveries have been made under the stimulus of a non-scientific ideal. This was the case amongst the ancients, and it has been so amongst ourselves. Mayer, Joule, and Colding, whose names are associated with the greatest of modern generalizations, were thus influenced. With his usual insight, Lange at one place remarks that 'it is not always the objectively correct and intelligible that helps man most, or leads most quickly to the fullest and truest knowledge. As the sliding body upon the brachystochrone reaches its end sooner than by the straighter road of the inclined plane, so through the swing of the ideal we often arrive at the naked truth more rapidly than by the more direct processes of the understanding.' Whewell speaks of en-

[1] *Presidential address, British Association for the Advancement of Science*, Belfast, 1874.

thusiasm of temper as a hindrance to science; but he means the enthusiasm of weak heads. There is a strong and resolute enthusiasm in which science finds an ally; and it is to the lowering of this fire, rather than to the diminution of intellectual insight, that the lessening productiveness of men of science in their mature years is to be ascribed. Mr. Buckle sought to detach intellectual achievement from moral force. He gravely erred; for without moral force to whip it into action, the achievements of the intellect would be poor indeed.

"It has been said that science divorces itself from literature; but the statement, like so many others, arises from lack of knowledge. A glance at the less technical writings of its leaders — of its Helmholtz, its Huxley, and its du Bois-Reymond — would show what breadth of literary culture they command. Where among modern writers can you find their superiors in clearness and vigor of literary style? Science desires not isolation, but freely combines with every effort toward the bettering of man's estate. Single-handed, and supported not by outward sympathy, but by inward force, it has built at least one great wing of the many-mansioned home which man in his totality demands. And if rough walls and protruding rafter-ends indicate that on one side the edifice is still incomplete, it is only by wise combination of the parts

required with those already irrevocably built that we can hope for completeness. There is no necessary incongruity between what has been accomplished and what remains to be done. The moral glow of Socrates, which we all feel by ignition, has in it nothing incompatible with the physics of Anaxagoras which he so much scorned, but which he would hardly scorn to-day. . . .

"The world embraces not only a Newton, but a Shakspere — not only a Boyle, but a Raphael — not only a Kant, but a Beethoven — not only a Darwin, but a Carlyle. Not in each of these, but in all, is human nature whole. They are not opposed, but supplementary — not mutually exclusive, but reconcilable. And if, unsatisfied with them all, the human mind, with the yearning of a pilgrim for his distant home, will still turn to the Mystery from which it has emerged, seeking so to fashion it as to give unity to thought and faith, so long as this is done, not only without intolerance or bigotry of any kind, but with the enlightened recognition that ultimate fixity of conception is here unattainable, and that each succeeding age must be held free to fashion the mystery in accordance with its own needs — then, casting aside all the restrictions of Materialism, I would affirm this to be a field for the noblest exercise of what, in contrast with the knowing faculties, may be called the creative faculties of man."

Close as are man's structural relations to the lower animals, his equipment is peculiar to himself. The actions of the lower animals are conditioned by sensations and momentary impulses. Man, on the other hand, is enabled to raise himself above fleeting sensations to the realm of ideas, and in that realm he finds his real life. Similarly, man's will gradually frees itself from bondage to a chain of causes determined for it from without, and attains to a power of independent self-determination according to durable and continuing ends of action. This constitutes character, which, in Emerson's fine phrase, is the moral order seen through the medium of an individual nature. Freedom of the will is not, then, a metaphysical notion, nor is it obtained from nature or seen in nature. It is a development in the life of the human soul. Freedom and rationality are two names for the same thing, and their highest development is the end of human life. This development is not, as Locke thought, a process arising without the mind and acting upon it, a passive and pliable recipient. Much less is it one that could be induced in the

hypothetical statue of Condillac and Bonnet. It is the very life of the soul itself.

There is a striking passage in *The Marble Faun* in which Hawthorne suggests the idea that the task of the sculptor is not, by carving, to impress a figure upon the marble, but rather, by the touch of genius, to set free the glorious form that the cold grasp of the stone imprisons. With similar insight, Browning puts these words into the mouth of his Paracelsus:

> "Truth is within ourselves; it takes no rise
> From outward things, whate'er you may believe.
> There is an inmost centre in us all,
> Where truth abides in fullness; and around,
> Wall upon wall, the gross flesh hems it in,
> This perfect, clear perception. . . .
> . . . And, to know,
> Rather consists in opening out a way
> Whence the imprisoned splendor may escape,
> Than in effecting entry for a light
> Supposed to be without."

This is the poetical form of the truth that I believe is pointed to by both philosophy and science. It offers us a sure standing-ground for our educational theory. It reveals to us,

not as an hypothesis but as a fact, education as spiritual growth toward intellectual and moral perfection, and saves us from the peril of viewing it as an artificial process according to mechanical formulas. Finally, it assures us that while no knowledge is worthless, — for it all leads us back to the common cause and ground of all, — yet that knowledge is of most worth which stands in closest relation to the highest forms of the activity of that spirit which is created in the image of Him who holds nature and man alike in the hollow of his hand.

IS THERE A NEW EDUCATION?

Presidential Address

delivered before the

Association of Colleges and Preparatory Schools

of the Middle States and Maryland,

at Easton, Pennsylvania, November 29, 1895

IS THERE A NEW EDUCATION?

THE title of this discussion is designedly thrown into the form of a question. Its purpose is to provoke, if possible, a difference of opinion — always a healthier and more productive intellectual state than the dull mediocrity of agreement. Difference of opinion begets doubt, doubt begets inquiry, and inquiry eventually leads to truth. Virgil's fine line,

Felix qui potuit rerum cognoscere causas,

is profoundly true; but more fortunate still is he who comes to his knowledge by the sure method of honest doubt.

For a generation we have been doing lip-service to the doctrine of evolution; but only with great slowness and difficulty do old forms of speech and old habits of mind fit themselves to a new point of view that makes so strong an

appeal both to our reason and to our imagination. In no department of knowledge is this more true than in the field of education. Education is essentially a conservative process; it cherishes its time-worn instruments and reveres its time-honored standards. The treasures of the mind are too precious to be lightly exposed to the loss or harm that might come to them through change. Yet the opinion has found lodgment among our craft that after all, and despite the excellence of old methods and old standards, the educational theory and practice of a given age or generation must stand in close relation to its intellectual and ethical ideals and to the material fabric of its civilization: and surely all three of these habitually vary, not only over long periods but in relatively short intervals of time. It is a grave matter for the teacher if virtue is identical with knowledge, as Socrates taught; or if it is the result of habit, as Aristotle held; or if it is the cunning invention of rulers, as Mandeville suggested; or if it is mere skill in calculating the chances of pleasure and pain, as Bentham laid down. It is important, too, primarily for the

higher education, but eventually for the lower schools as well, if our intellectual ideal is represented by the active mind of a Leibniz or a Gladstone, with its immense energy and broad range of interests ; or if it is better typified by the narrow, plodding specialization of a Darwin or of those Teutonic philologers who are unduly distracted if their investigations cover more than the gerund or the dative case. Still more directly must our education depend upon the material equipment of the time. In this day of innumerable printing-presses, with a power of production sadly out of proportion to their power of discrimination, it is quite inconceivable that we should not find ourselves forced to con anew the grounds on which rest the principles and methods that have come down to us from the age of manuscripts and pack-saddles. Such a process of questioning has been under way for some time past, and has contributed in no small degree to that marvellous enthusiasm for education and to that belief in it, the evidences of which are to be seen on every hand.

There are three avenues of scientific ap-

proach to the study of education, and in each of them the evolutionary point of view is not only illuminating but controlling. These three avenues are the physiological, the psychological, and the sociological. Their points of contact are many and their inter-relations are close. Modern psychology has already given up the attempt to treat mental life without reference to its physical basis; and it will sooner or later regard any interpretation as incomplete that does not relate the individual to what may be called the social life or consciousness. Man's institutional life is as much a part of his real self as his physical existence or his mental constitution. *Robinson Crusoe* is, in one of the catch phrases of the day, a barren ideality.

It must be admitted that this point of view is both very old and very new. It is very old, for it was Aristotle himself who wrote, "Man is by nature a political animal. And he who by nature, and not by mere accident, is without a state, is either above humanity or below it."[1] It is also very new, for it is in flat contradic-

[1] *The politics of Aristotle*, I, 2, Jowett's translation (Oxford, 1885), p. 4.

tion to the doctrine of Rousseau, "Compelled to oppose nature or our social institutions, we must choose between making a man and a citizen, for we cannot make both at once"[1] — the crudeness and superficiality of which have not prevented it from exercising a wide and long-continued influence. Modern philosophy confirms here, as so often, the analysis of Aristotle; and it rejects, as is becoming customary, the extreme individualism of the later eighteenth century. The significance of this for our educational theory is all-important.

Returning now to the first of the three pillars on which the modern study of education rests — the physiological — it may be useful to recall briefly what consideration has been given to it in the past. All of the older culture-nations laid stress upon it, and some of them dealt with it in systematic fashion. But the Greeks alone understood the educational value of play. Their great national games combined systematic physical training and play in a way that we have not yet succeeded in equalling.

[1] Rousseau's *Émile*, translated by W. H. Payne (New York, 1893), p. 5.

The ascetic ideal that ruled the schools of the Middle Ages left no place for a continuance of the Greek practice, and it was forgotten. We find ourselves to-day struggling to imitate it. In Germany systematic physical training is made much of in education, but genuine play is not prominent. In England, on the contrary, play has been found so successful in developing strength and suppleness of body and sturdy, independent character that anything approaching systematic, formal training is regarded as almost unnecessary. In this country the present tendency is to develop both elements, after the fashion of the Greeks; and it is to be hoped that the outcome will be even more satisfactory than it was at Athens and at Corinth.

But physical and physiological considerations cut far deeper than this. They demand a hearing when we have under discussion questions of school hours and recesses, of programmes and tasks, of school furniture, of textbooks and blackboards, of light, heat, and fresh air. On all of these topics we have recently learned much that has not yet found its way into our practice. College faculties and school

teachers, framers of examination tests, donors of laboratories and dormitories, and, most of all, architects, are as a rule oblivious to the vital interest that the pupil has in matters of this kind. Considerations of tradition, convenience, cost, and external appearance are allowed full swing, and the growing youth must fit the Procrustean bed as best they can. The signs of mal-nutrition and weakness, as described, for example, by Warner, and the laws of mental and physical fatigue, as arrived at by such investigations as those of Mosso and of Burgerstein, are about as familiar to teachers in colleges and in preparatory schools as are the Laws of Manu. And yet they affect vitally every young man or young woman who enters a schoolroom or a college. No amount of thundering eloquence on the value of the ancient classics, no emphasis on character as the sole end of education, can make amends for our failure to study the facts dealing with the physical and physiological elements in education, and for our delay in applying them. We need to be strongly reminded that wickedness is closely akin to weakness, and then to

consider the moral consequences of our physiological ignorance.[1]

The relation of psychology to education is the one subject on which the teacher of to-day is supposed to be informed. Normal schools without number, and here and there a college, give definite instruction in the subject. Yet a careful inspection of the most popular text-books in use, and visits to some hundreds of classrooms, have convinced me that the results of this knowledge, if it exists, are, in the field of secondary and higher education, almost *nil*. In this respect the elementary teacher is far in advance. Perhaps no secondary school or college in America can show teaching to compare, in mastery of scientific method and in technical skill, with the best teaching to be seen in many of the public elementary schools, particularly in the Western States. In consequence of this, we may safely assume that pupils fresh from the vigorous intellectual and moral growth of a well-conducted elementary school, will turn aside from the machine meth-

[1] Compare "Moral education and will-training," by G. Stanley Hall, in *Pedagogical Seminary*, II, 72–89.

ods and dull, uninspiring class-exercises of our average academy with disgust. The new educational life-blood is flowing most freely and vigorously in the veins of the elementary teacher. Here and there a secondary schoolmaster, and here and there a college president or professor, takes a genuine and intelligent interest in education for its own sake; but the vast majority know nothing of it and are but little affected by it. They are content to accumulate what they are pleased to term "experience"; but their relation to education is just that of the motorman on a trolley-car to the science of electricity. They use it; but of its nature, principles, and processes they are profoundly ignorant. The one qualification most to be feared in a teacher, and the one to be most carefully inquired into, is this same "experience" when it stands alone. I am profoundly distrustful of it. The pure empiricist never can have any genuine experience, any more than an animal, because he is unable to interrogate the phenomena that present themselves to him, and hence is unable to understand them. The scientific teacher, the

theorist, on the contrary, asks what manner of phenomena these are that are before him, what are their inner relations, and the principles on which they are based. This, of course, is the first great step, taken by all scientific method, toward a knowledge of causes. It is at this point that we reach the real reason for the need of an accurate knowledge of psychology on the part of the teacher. His dealings in the schoolroom are primarily with mental processes and mental growth. Unless these are scientifically studied and understood, or — and this does not happen often — unless natural psychological insight comes to the rescue of psychological ignorance, the teaching is bound to be mechanical; and the longer it is continued, the more "experience" is acquired, and the more wooden and mechanical it becomes.

A short time ago I was present at an exercise in modern history, given to an undergraduate class, averaging over eighteen years of age, in one of our Eastern colleges. The text-book in the hands of the students was of a very elementary character, and is much

used in public high schools, both East and West. The teacher was a college graduate, and had held his position for several years. These years had been years of "experience," and would have been strongly urged as an important qualification had his name been under consideration for promotion or for transfer to another institution. Yet the entire hour that I spent in his class was given up to the dictation of an abstract of the text-book. This, he told me, was his usual method. The students took down the dictation, word for word, in a dull, listless way, and gave a sigh of mingled despair and relief when it came to an end. This process went on several times weekly for either one or two years. I ascertained from the instructor that he called it "hammering the facts home." He is, for aught I know, "hammering" yet, and now has some additional "experience" to his credit. So have his pupils.

Not long ago a prominent publishing firm issued a widely advertised text-book on a subject much taught nowadays. For the purposes of real teaching, of arousing interest and

enthusiasm in the subject, and of stimulating the student to pursue it farther, to reflect upon it, and to make its lessons his own, it was as ill-adapted as any printed matter occupying the same number of pages could be. As a compendium of bare facts and dates to be committed to memory, and reproduced in answer to definite questions, it was clear and concise. Despite this fact, the publishers have recently issued a circular commendatory of the book, that contains two-score cordial indorsements of it as a text-book, over the signatures of as many high-school and college teachers. I interpret that to mean that those two-score teachers lack either educational intelligence or educational conscience ; perhaps both.

No amount of psychological learning could make it impossible for the inquirer to find cases like these, and the hundreds of others of which they are typical, in the schools and colleges ; but a psychological training on the part of the teacher would go far to diminish their number. Professor Royce pointed out[1]

[1] "Is there a science of education?" in *Educational Review*, I, 15-25 ; 121-132.

several years ago that what the teacher has chiefly to gain from the study of psychology is, not rules of procedure, but the psychological spirit. The teacher, he adds, should be a naturalist and cultivate the habit of observing the mental life of his pupils for its own sake. In this he will follow the method common to all naturalists: "What is here in this live thing? Why does it move thus? What is it doing? What feelings does it appear to have? What type of rudimentary intelligence is it showing?" Such questions as these form the habit of watching minds, and of watching them closely. This habit is the surest road to good teaching, and its formation is the best service that psychology can render to the classroom. Until a teacher has acquired that habit and subordinated his schoolroom procedure to it, he is not teaching at all; at best he is either lecturing or hearing recitations.

We are chiefly indebted to the students and followers of Herbart for the present widespread interest in this country in two psychological doctrines of the greatest importance

for all teaching — the doctrine of apperception and the doctrine of interest. The former has to do with mental assimilation, the latter with the building of character and ideals. I know of no more fruitful field for the application of both of these than the freshman year of the college course. My observation has taught me that the work of the freshman class in college is, as a rule, very ineffective. College teachers who admit this fact are in the habit of accounting for it by alleging the difficulty of welding into a homogeneous mass the new students of different advantages, training, and mental habits. The task is more than difficult; it is impossible, and ought never to be attempted, much less encouraged. That it goes on year after year in a hundred colleges is due to the strait-jacket system of class teaching by which we defy the rules of God and man to the glory of what, in our professional cant, we call "sound education." If we could secure a hearing for the doctrine of apperception, all this would be changed. We should then recognize in our practice as we do in our faith

that the mind is not a passive recipient of the impressions that reach it; that it reacts upon them, colors them, and makes them a part of itself in accordance with the tendency, the point of view, and the possessions that it already has. This tendency, this point of view, and these possessions differ in the case of every individual. Instead of overlooking or seeking to annul these differences, we should first understand them and then base our teaching upon them. If the first month of freshman year were spent in carefully ascertaining the stage of development, in power and acquirement, that each pupil had reached, it would be possible so to order and adjust the work of the year as to make it useful and educative. I have known case after case in which the opposite policy of treating all upon one plane, and making the same demands upon all, has made a college course a source of positive harm; it also accounts, in greater measure than we are aware of, for the large proportion of students who fall away at the end of the freshman and sophomore years. Yet so long as college

teachers know so little psychology as to cling to the old dogma of formal discipline, and continue to pound away on so much mathematics to train the reasoning powers and so much Greek grammar to train something else, regardless of the content of the instruction and of all other considerations — just so long will one mind be lost or injured for every one that is saved or benefited. As Colonel Parker has so forcibly said, "We dwell on those who have been saved by our older methods, but who has counted the lost?"

The situation is not very different with respect to the doctrine of interest. We continually complain that valuable and necessary instruction given in school and in college is forgotten, that it is not retained, not extended, and not applied. The fault lies partly, no doubt, with the pupils, but largely with ourselves. We have still to learn what interest means, how it is changed from indirect to direct, and how it is built up into a permanent element of character. We are inexperienced in seeking out and seizing upon the present and temporary interests of the student, and in using

them as a factor in training. It is a common thing to hear it said that since life is full of obstacles and character is strengthened by overcoming them, so the school and college course should not hesitate to compel students to do distasteful and difficult things simply because they are distasteful and difficult. I do not hesitate to say that I believe that doctrine to be profoundly immoral and its consequences calamitous. But, it is answered, you certainly would not trust to a student's whims and allow him to do or not do as he pleases. Certainly not; and that is not the alternative. The proper and scientific course is to search for the pupil's empirical and natural interests, and to build upon them. This is not always easy; it requires knowledge, patience, and skill. It is far easier to treat the entire class alike and to drive them over the hurdles set by a single required course of study, in the vain hope that the weak and timid will not be injured as much as the strong and confident will be benefited, and that somehow or other the algebraic sum of the results of the process

will bear a positive sign. I earnestly commend to every teacher the study of these two principles, apperception and interest. I do so in the firm belief that the practical result of that study would be an immense uplifting of the teaching efficiency of every educational institution in the United States.

What, for lack of a better term, I call the sociological aspect of education is, in many respects, the most important of all. Under this head are to be put such questions as those that deal with the aim and limits of education, its relation to the state, its organization and administration, and the course of study to be pursued. I can now refer to but a single one of these topics. Dr. Harris, in the opening paragraphs of his well-known report on the correlation of studies, dealt a final blow to the idea that the course of study is to be settled either by tradition or by conditions wholly psychological. "The game of chess," he points out,[1] "would furnish a good course of study for the discipline of the powers of attention and calcu-

[1] *Report of the Committee of Fifteen on elementary education* (New York, 1895), p. 42.

lation of abstract combinations, but it would give its possessor little or no knowledge of man or nature. . . . Psychology of both kinds, physiological and introspective, can hold only a subordinate place in the settlement of questions relating to the correlation of studies." He also shows that the chief consideration to which all others are to be subordinated is the "requirement of the civilization into which the child is born, as determining not only what he shall study in school, but what habits and customs he shall be taught in the family before the school age arrives; as well as that he shall acquire a skilled acquaintance with some one of a definite series of trades, professions, or vocations in the years that follow school; and, furthermore, that this question of the relation of the pupil to his civilization determines what political duties he shall assume and what religious faith or spiritual aspirations shall be adopted for the conduct of his life."[1]

It is at this point that the study of education from the sociological point of view begins.

[1] *Report of the Committee of Fifteen on elementary education* (New York, 1895), p. 41.

Instead of forcing the course of study to suit the necessities of some preconceived system of educational organization, it should determine and control that organization absolutely. Were this done, the troubles of the secondary school, the Cinderella of our educational system, would disappear. Just at present it is jammed into the space left between the elementary school and the college, without any rational and ordered relation to either. The ever-present problem of college entrance is purely artificial, and has no business to exist at all. We have ingeniously created it, and are much less ingeniously trying to solve it. Leibniz might have said that mental development, as well as nature, never makes leaps. It is constant and continuous. The idea that there is a great gulf fixed between the sixteenth and seventeenth years, or between the seventeenth and eighteenth, that nothing but a college entrance examination can bridge, is a mere superstition that not even age can make respectable. It ought to be as easy and natural for the student to pass from the secondary school to the college as it is for him to pass from one class to another in the

school or in the college. In like fashion, the work and methods of the one ought to lead easily and gradually to those of the other. That they do not do so in the educational systems of France and Germany is one of the main defects of those systems. The American college as a school of broad and liberal education, a place where studies are carried on with reference to their general and more far-reaching relations, is indispensable for the very reason that it permits and encourages the expansion and development of school work in the widest possible way, before the narrow specialization of the university is entered upon. Happily, there are in the United States no artificial obstacles interposed between the college and the university. We make it very easy to pass from the one to the other; the custom is to accept any college degree for just what it means. We make it equally easy to pass from one grade or class to another and from elementary school to secondary school, the presumption always being that the pupils are ready and competent to go forward. The barrier between secondary school and college is the only one that we insist upon

retaining. The intending collegian alone is required to run the gantlet of college professors and tutors, who, in utter ignorance of his character, training, and acquirements, bruise him for hours with such knotty questions as their fancy may suggest. In the interest of an increased college attendance, not to mention that of a sounder educational theory, this practice ought to be stopped and the formal tests at entrance reduced to a minimum.

Public opinion itself, despite the protests of the pundits of the faculties, is forcing an extension of the course of study. It is one of the best bits of grim humor that our American practice, inherited from the mother country, affords, that the designation "liberal" has come to be claimed as the sole prerogative of a very narrow and technical course of study that was invented for a very narrow and technical purpose, and that has been very imperfectly liberalized in the intervening centuries. It ought to soften somewhat the asperity of teachers of Greek to remember that the very arguments by which they are in the habit of

resisting the inroads of the modern languages, the natural sciences, and economics, were used not so many hundreds of years ago to keep Greek itself from edging its way into the curriculum at all. Paulsen is indubitably right in his insistence upon the fact that the modern world has developed a culture of its own, which, while an outgrowth of the culture of antiquity, is quite distinct from it. It is to this modern culture that our education must lead. The first question to be asked of any course of study is, Does it lead to a knowledge of our contemporary civilization? If not, it is neither efficient nor liberal.

In society as it exists to-day the dominant note, running through all of our struggles and problems, is economic,—what the old Greeks might have called political. Yet it is a constant fight to get any proper teaching from the economic and social point of view put before high-school and college students. They are considered too young or too immature to study such recondite subjects, although the nice distinctions between the Greek moods and tenses and the principles of conic sections, with their

appeal to the highly trained mathematical imagination, are their daily food. As a result, thousands of young men and young women, who have neither the time, the money, nor the desire for a university career, are sent forth from the schools either in profound ignorance of the economic basis of modern society, or with only the most superficial and misleading knowledge of it. The indefensibleness of this policy, even from the most practical point of view, is apparent when we bear in mind that in this country we are in the habit of submitting questions, primarily economic in character, every two or four years to the judgment and votes of what is substantially an untutored mob. If practical politics only dealt with chemistry as well as with economics, we could, by the same short and easy method, come to some definite and authoritative conclusion concerning the atomic theory and learn the real facts regarding helium. But since the economic facts, and not the chemical or linguistic facts, are the ones to be bound up most closely with our public and private life, they should, on that very account, be strongly represented

in every curriculum. We can leave questions as to the undulatory theory of light and as to Grimm's and Verner's laws to the specialists; but we may not do the same thing with questions as to production and exchange, as to monetary policy and taxation. The course of study is not liberal, in this century, that does not recognize these facts and emphasize economics as it deserves. I cite but this one instance of conflict between the inherited and the scientifically constructed course of study. The argument and its illustration might be much extended.

I have now indicated how I should answer my own question, and have briefly pointed out typical grounds on which that answer rests. There remains the ungracious duty of adding a word regarding the attitude of college faculties and schoolmasters toward the scientific study of education. The recklessness with which the man of letters, sometimes the college president, and now and then even the more canny college professor, will rush into the public discussion of matters of education concerning which he has no knowledge whatever,

and to which he has never given a half hour's connected thought, is appalling. Opinion serves for information, and prejudice usurps the place of principle. The popular journals and the printed proceedings of educational associations teem with perfectly preposterous contributions bearing the signatures of worthy and distinguished men, who would not dream of writing dogmatically upon a physical, a biological, or a linguistic problem. For some recondite reason they face the equally difficult and unfamiliar problems of education without a tremor. The effect is bad enough on the colleges and schools themselves, but it is far worse on the public generally, who are thus led off to the worship of false gods. Even in the largest American institutions, where most is at stake, the men who give any conscientious and prolonged study to education itself, as distinct from the department of knowledge in which their direct work lies, can be counted upon the fingers of one hand. As a consequence, many college faculties are no better qualified to decree courses of study and conditions of admission than they are to adopt a

system of ventilation or of electric lighting. In time, doubtless, this will be recognized, and in the former case, as in the latter, the faculties will submit to be guided by specialists who do know. That will never come to pass, however, until school and college teachers see clearly that scholarship is one thing and knowledge of the educational process quite another; that long service in a school or college is almost as compatible with ignorance of education, scientifically considered, as long residence in a dwelling is compatible with ignorance of architecture and carpentry.

Dr. Johnson's acumen was equal to drawing a distinction between the new as the hitherto non-existent, the new as the comparatively recent, and the new as the hitherto unfamiliar. In each and all of these senses of the word, I am confident that there is a new education.

DEMOCRACY AND EDUCATION

An Address

delivered before the

National Educational Association

at Buffalo, New York, July 7, 1896

DEMOCRACY AND EDUCATION

Philosophers, poets, and sometimes men of science, are fond of speculating on an answer to the question, Whither are we tending? But more personal matters and more immediate interests detain the attention of the vast majority of mankind. The mere question of absolute physical direction, to say nothing of the tendencies of institutions and ideals, lies far beyond the range of vision of the average man. The passenger in a railway train moving west may walk leisurely eastward, within the limits of the train, and feel certain of his direction and speed. But the train travelling westward, forty miles an hour, is on the surface of a planet that revolves on its axis from west to east with a velocity of a thousand miles an hour. More than this, the earth is also plunging forward in space, in its orbit about the

sun, at the fearful rate of more than 1100 miles per minute; while as a member of the solar system it drifts rapidly with its fellows toward a distant point in the constellation Hercules. Perhaps the whole sidereal system, the entire cosmos even, has yet other motions of its own. How hopeless, then, is it to attempt to trace the exact path, judged by an absolute standard, of a body moving on the earth's surface! The very conception staggers us, and our imaginations fall back helpless.

Nor is it otherwise with the directions and tendencies of things intellectual and institutional. The *Laudator temporis acti* is convinced that civilization is just now on a downward grade. The old order has changed and given place to a new; and the new order seems to him to lack something of the robustness, the idealism, the valor, of the old. His antagonist, fresh from contemplating the abstract rights of man as depicted by modern political philosophers, sees hope and promise only in the future; to such an observer the past is a record of folly, imperfection, and crime. The sane man may be forgiven if at times he fails

to listen with patience to either advocate. His sanity deserts him, however, if he attempts to take refuge in cynicism and pessimism. While we may not hope to grasp fully the significance of movements of which we ourselves are a part, we can nevertheless study them, trace their beginnings, and measure their present effects. Such an attitude, hopeful yet cautious, leads to the only point of view which is at once scientific and philosophical.

However difficult it may be to estimate present tendencies with any precision or authority, there is a widespread instinctive feeling among thoughtful men, as Mr. Kidd has pointed out in the first pages of his *Social Evolution*, that a definite stage in the evolution of our civilization is drawing to a close and that we are face to face with a new era. The history of the nineteenth century lends color to the suggestion that the new era has already begun. The evidence for this is drawn from the records of material advance, of scientific progress, and of political development.

The material advances made since the present century opened are more numerous and

more striking than the sum total of those that all previous history records. We find it difficult even to imagine the world of our grandfathers, and almost impossible to appreciate or understand it. Without the factory, without the manifold products and applications of steam and electricity, without even the newspaper and the sulphur match, the details of our daily life would be strangely different. In our time wholly new mechanical and economic forces are actively at work, and have already changed the appearance of the earth's surface. What another hundred years may bring forth no one dares to predict.

The scientific progress of the century is no less marvellous and no less revolutionary in its effects than the material advance. The nebular hypothesis, once the speculative dream of a few mathematicians and philosophers, is now a scientific commonplace. The geology of Lyell, the astronomy of Herschel, the biology of von Baer, of Darwin, and of Huxley, the physiology of Müller, the physics of Helmholtz and of Roentgen, are already part of the common knowledge of all educated men. To

us the world and its constitution present an appearance very different from that which was familiar to our ancestors.

But most striking and impressive of all movements of the century is the political development toward the form of government known as democracy. Steadily and doggedly throughout the ten decades the movement toward democracy has gone its conquering way. When the century opened democracy was a chimera. It had been attempted in Greece and Rome and again in the Middle Ages; and the reflecting portion of mankind believed it to be a failure. Whatever its possibilities in a small and homogeneous community, it was felt to be wholly inapplicable to large states. The contention that government could be carried on by what Mill called collective mediocrity rather than by the intelligent few, was felt to be preposterous. The horrible spectre of the French Revolution was fresh in the minds of men. The United States, hardly risen from their cradle, were regarded by the statesmen of Europe with a curiosity, partly amused, partly disdainful. Germany was gov-

erned by an absolute monarch, the grand-nephew of the great Frederick himself. In England a constitutional oligarchy, with Pitt at its head, was firmly intrenched in power. The Napoleonic reaction was in full swing in France. How different will be the spectacle when the twentieth century opens! In Great Britain one far-reaching reform after another has left standing only the shell of oligarchy; the spirit and support of British civilization are democratic. Despite the influence of Bismarck and the two Williams, great progress is being made toward the democratization of Germany. France, after a period of unexampled trouble and unrest, has founded a successful and apparently stable republic. The United States have disappointed every foe and falsified the predictions of every hostile critic. The governmental framework constructed by the fathers for less than four millions of people, scattered along a narrow strip of seaboard, has expanded easily to meet the needs of a diverse population twenty times as large, gathered into great cities and distributed over an empire of seacoast, mountain, plain, and forest. It has

withstood the shock of the greatest civil war of all time, fought by men of high intelligence and determined convictions. It has permitted the development and expansion of a civilization in which there is equality of opportunity for all, and where the highest civil and military honors have been thrust upon the children of the plain people by their grateful fellow-citizens.

So significant has this phenomenon of democracy become, so widespread is its influence, and so dominating are its ideals, that we have rightly begun to study it both with the impartial eye of the historian and by the analytic method of the scientist. The literature of democracy for the past half century is extremely important; and Tocqueville, Bagehot, Scherer, Carlyle, Maine, Bryce, and Lecky are but a few of the great names that have contributed to it. Through all the pages of these writers runs an expression of the conviction that the stream of tendency toward democracy can neither be turned back nor permanently checked. Some of these students of democracy are its enthusiastic advocates,

others are its hostile critics: all alike seem to resign themselves to it.

The process of substituting this new social and political system for an older one has not been uninterrupted or untroubled, nor has it given perfect satisfaction. As the political pendulum has continued to swing through a wide but diminishing arc, the cries have been loud and constant that injustice and favoritism have not been suppressed, that all are not equally prosperous, and that not even democracy is a cure for all our distress and dissatisfaction. Much of this is no doubt due to the tendency in all stages of history, spoken of by Burke, to ascribe to prevailing forms of government ills that in reality flow from the constitution of human nature. But in part at least — in how great part perhaps we fail to recognize — it is due to the imperfect and halting application of our democratic ideals and the very partial acceptance of our democratic responsibilities. The platitudes of democracy are readily accepted by the crowd; the full depth of its principles is far from being generally understood. It is easy to cry "Lib-

erty, Equality, and Fraternity," and to carve the words in letters of stone upon public buildings and public monuments. It is not so easy to answer the query whether, in truth, unrestricted liberty and perfect equality are at all compatible. For it has been pointed out that liberty leads directly to inequality, based upon the natural differences of capacity and application among men. Equality, on the other hand, in any economic sense, is attainable only by the suppression in some degree of liberty, in order that, directly or indirectly, the strong arm of the state may be able to hold back the precocious and to push forward the sluggish. Obviously there is food for thought in this, — thought that may serve to check the rhetorical exuberance of the enthusiast, and lead him to ask whether we yet fully grasp what democracy means.

Democracy is, as I have said, a movement so novel and so sweeping, that we have not yet had time to compare it closely, in all its phases, with monarchy and oligarchy. The advantages of those forms of political organization were manifest when society was

young and man's institutional life yet undeveloped. As time went on, the weaknesses of such forms of government became apparent. The plunge into democracy was made, and we have usually gone no further than to contrast its blessings with what we know of the oppression and iniquity that resulted from kingship and oligarchy in the early modern period. We must, however, go further than this, and gain a truer and deeper insight into the institutional life of which we are a part.

It is just here that we find evidence of the close relations that exist between democracy and education. So long as the direction of man's institutional life was in the hands of one or the few, the need for a wide diffusion of political intelligence was not strongly felt. The divine right of kings found its correlative in the diabolical ignorance of the masses. There was no educational ideal, resting upon a social and political necessity, that was broad enough to include the whole people. But the rapid widening of the basis of sovereignty has changed all that. No deeper conviction pervades the people of the United States and of

France, who are the most aggressive exponents of democracy, than that the preservation of liberty under the law, and of the institutions that are our precious possession and proud heritage, depends upon the intelligence of the whole people. It is on this unshakable foundation that the argument for public education at public expense really rests.

It was not by accident that the Greek philosophers made their contributions to educational theory in treatises on the nature and functions of the state. Both Plato and Aristotle had a deep insight into the meaning of man's social and institutional life. To live together with one's fellows in a community involves fitness so to live. This fitness, in turn, implies discipline, instruction, training; that is, education. The highest type of individual life is found in community life. Ethics passes into or includes politics, and the education of the individual is education for the state. The educated Greek at the height of his country's development was taught to regard participation in the public service alike as a duty and a privilege. The well-being of the community was constantly

before him as an ideal of personal conduct. To depart from that point of view is to entail the gravest consequences. That a large proportion of our people, and among their number some of the most highly trained, have departed from it, needs no proof.

Failure to understand the political life of a democratic state and failure to participate fully in it, lead directly to false views of the state and its relations to the individual citizen. Instead of being regarded as the sum total of the citizens who compose it, the state is, in thought at least, then regarded as an artificial creation, the plaything of so-called politicians and wire-pullers. This view, that the individual and the state are somehow independent each of the other, is not without support in modern political philosophy, but it is a crude and superficial view. It gives rise to those fallacies that regard the state either as a tyrant to be resisted or as a benefactor to be courted. No democracy can endure permanently on either basis. The state is the completion of the life of the individual, and without it he would not wholly live. To inculcate that doc-

trine should be an aim of all education in a democracy. To live up to it should be the ideal of the nation's educated men.

Impossible in theory as the separation of the state from the individuals who compose it seems, yet in practice it is found to exist. This is true in the United States, and in some localities more than others. Our constitutional system, elaborately adjusted so that each individual's choice may count in the ascertainment of the common will, now shelters a system of party organization and of political practice, undreamt of by the fathers, that effectually reduces our theoretical democracy to an oligarchy, and that oligarchy by no means an aristocracy. With here and there an exception, the educated men of the country hold themselves aloof — or are held aloof — from participation in what is called practical politics. That field of activity which should attract the highest intelligence of the nation too often repels it. When a man of the most highly trained powers engages in political life, he becomes an object of curiosity and comment. If he despises the petty arts and chicaneries

of the demagogue he becomes "unpopular." After a brief interval he passes off the public stage without even a perfunctory recognition of his services. It is safe to say that the framers of no government, least of all the framers of our own, contemplated a practical outcome such as this. If education and training unfit men for political life, then there is something wrong either with our political life or with our education.

The teachers of the country should address themselves to this question with determination and zeal. Instruction in civil government is good; the inculcation of patriotism is good; the flag upon the schoolhouse is good. But all these devices lie upon the surface. The real question involved is ethical. It reaches deep down to the very foundations of morality. It is illuminated by history.

The public education of a great democratic people has other aims to fulfil than the extension of scientific knowledge or the development of literary culture. It must prepare for intelligent citizenship. More than a century ago Burke wrote that "the generality of people are

fifty years, at least, behindhand in their politics. There are but very few who are capable of comparing and digesting what passes before their eyes at different times and occasions, so as to form the whole into a distinct system." This is the warning of one of the greatest of publicists that a thoroughly instructed and competent public opinion on political matters is difficult to attain. Yet, unless we are to surrender the very principle on which democracy rests, we must struggle to attain it. Something may be accomplished by precept, something by direct instruction, much by example. The words "politics" and "politician" must be rescued from the low esteem into which they have fallen, and restored to their ancient and honorable meaning. It is safe to say that the framers of our Constitution never foresaw that the time would come when thousands of intelligent men and women would regard "politics" as beneath them, and when a cynical unwillingness to participate in the choice of persons and policies would develop among the people. Yet such is, of course, the case. The people of the state of

New York will in November next choose a governor. The power and dignity of the office make it one of the greatest in the land. About one and a half million qualified voters will be entitled to participate in the choice. Theoretically any competent person might be put forward for the office, and every individual's preference would be recorded and weighed. As a matter of fact, however, the choice of the state must be made between two persons, who in turn will be selected by, perhaps, ten per cent. of the electorate, at the suggestion or dictation of not more than a dozen men. Had such a system, or anything like it, been proposed at the time the Constitution was adopted, there would have been instant rebellion. "Life, liberty, and the pursuit of happiness" would not have seemed worth having under such conditions. Yet, now that it has come about, there is no very great dissatisfaction with it. The system could be broken up in a twelvemonth if men really cared to break it up. It exists, therefore, by popular consent, if not with popular approval. Its objective results may be as good as those that would be

reached by the ideal system; but its effect on the individual is disastrous. It induces a feeling of irresponsibility for public policy and a lack of interest in it that are absolutely destructive of good citizenship. The good citizen is not the querulous critic of public men and public affairs, however intelligent he may be; he is rather the constant participator in political struggles, who has well-grounded convictions and a strong determination to influence, by all honorable means, the opinion of the community. Were it otherwise, universal suffrage would not be worth having, and public education would be a luxury, not a necessity.

We do not better ourselves or serve the public interest by berating those who do interest themselves continually in politics, when their aims and their methods are not to our liking. There can be no doubt that the patriotic and well-intentioned element in the community is stronger and more numerous than the self-seeking and evil-dispositioned. It has the remedy in its own hands, and it is one of the chief duties of our education to enforce this truth.

Much of the disinclination to engage in active political life that is noticeable among a portion of our people is due, I believe, to the evil effects upon political standards and methods that flow from the debasing and degrading system that has gained so strong a hold in the United States of treating public office as a reward for partisan activity. The spoils system is absolutely undemocratic and utterly unworthy of toleration by an intelligent people. Suppose that it ruled the schools, as it rules so many other departments of public administration: then we should expect to see the election of a mayor in Boston, Chicago, New Orleans, or San Francisco, followed by hundreds of changes among the public school teachers, made solely for political reasons. How long would the National Educational Association permit that to go on without a protest that would be heard and heeded from Maine to Texas? Yet why should teachers, as good citizens, be more tolerant of such an abuse in other departments of the government? We have all noted with gratification the progress that is making toward the elimination of this

evil. A determined band of men have kept the issue before the public for nearly a generation, and now they have the satisfaction of seeing a great portion of the national service wrested from the defiling hand of the spoils hunter. In the state of New York the people have put into their new constitution an emphatic declaration on the subject. The full effect of this declaration, splendidly upheld and broadly interpreted by the courts, is just beginning to dawn upon the foes of a reformed and efficient public service. From this advance of sound sentiment and honest policy we may take every encouragement. But much remains to be done. Public sentiment must be first interested, then educated. Efficient public service is a mark of civilization. To turn over the care of great public undertakings to the self-seeking camp-followers of some political potentate, is barbaric. We teachers are the first to insist that incompetent and untrained persons shall not be allowed in the service of the schools. Why, then, should we tolerate the sight of a house-painter, instead of an engineer, supervising the streets and roadways

of a city of a hundred thousand inhabitants, or that of an illiterate hanger-on presiding over the public works of a great metropolis? These instances, drawn at random from recent political history, are typical of conditions that will be found widely diffused throughout our public service. Those conditions exist because of bad citizenship, low ideals of public service, and wretchedly inadequate moral vision. They will not be remedied until each one of us assumes his share of the task.

It is instructive, too, to note that the spoils system has diverted public interest in great measure from choice between policies to a choice between men. Two hundred years ago men made great sacrifices for an opportunity to share in the making of the laws by which they were governed. Yet when, in 1894, the people of the state of New York were called upon to vote, at one and the same election, for a governor and for or against a new constitution, containing many important and some novel propositions, more than a million and a quarter men voted for a candidate for governor, while less than

three-quarters of a million expressed themselves regarding the proposed constitution. And this is by no means a solitary instance of the tendency that it illustrates. A rational and intelligent democracy will first discuss questions of principle and then select agents to carry their determinations into effect. To fix our interest solely on individuals, and to overlook or neglect the principles for which they stand, is not intelligent.

It is a serious error, too, to believe, and to spread the belief, that democracies have nothing to learn as to principles of government and nothing to improve. From the time of Aristotle the dangers that are inherent in democracy have been known and discussed. But in our time men are often too blinded by the brilliancy of the manifest successes and advantages of this form of government to be able or willing to consider carefully the other side of the picture. How long, for example, could the American Congress maintain its power and prestige, if its membership was split up into half a score of warring groups, as in France? How

long will the American Senate continue to call forth the respect and confidence of the people, if its childish methods of transacting public business and its inability to close its own debates are allowed to continue? How long would life in our greatest city be endurable, if its administration be turned over permanently to the ignorant and rapacious members of a society organized for political plunder? What more distressing division of our people can there be than one on sectional lines, such as took place in 1860 and such as is being attempted again in 1896? Is it possible to believe that our native optimism is all that is needed to extricate us from these dangers — dangers not imaginary, but terribly real?

The difficulties of democracy are the opportunities of education. If our education be sound, if it lay due emphasis on individual responsibility for social and political progress, if it counteract the anarchistic tendencies that grow out of selfishness and greed, if it promote a patriotism that reaches farther than militant jingoism and gunboats,

then we may cease to have any doubts as to the perpetuity and integrity of our institutions. But I am profoundly convinced that the greatest educational need of our time, in higher and lower schools alike, is a fuller appreciation on the part of the teachers of what human institutions really mean and what tremendous moral issues and principles they involve. The ethics of individual life must be traced to its roots in the ethics of the social whole. The family, property, the common law, the state, and the church, are all involved. These, and their products, taken together, constitute civilization and mark it off from barbarism. Inheritor of a glorious past, each generation is a trustee for posterity. To preserve, protect, and transmit its inheritance unimpaired, is its highest duty. To accomplish this is not the task of the few, but the duty of all.

That democracy alone will be triumphant which has both intelligence and character. To develop them among the whole people is the task of education in a democracy. Not, then, by vainglorious boasting, not by

self-satisfied indifference, not by selfish and indolent withdrawal from participation in the interests and government of the community, but rather by the enthusiasm, born of intense conviction, that finds the happiness of each in the good of all, will our educational ideals be satisfied and our free government be placed beyond the reach of the forces of dissolution and decay.

THE AMERICAN COLLEGE AND THE AMERICAN UNIVERSITY

An Introduction

to Paulsen's "German Universities,

their character and historical development"

(New York, 1895)

THE AMERICAN COLLEGE AND THE AMERICAN UNIVERSITY

NOWHERE, outside of the German-speaking countries themselves, have the German universities been so highly appreciated and so widely imitated as in the United States. Just as the historic American college traces its origin in direct line to Oxford and Cambridge and their influence, so the new American university represents, to a remarkable degree, the influence and authority of the academic traditions of Heidelberg and Göttingen, of Leipsic and Berlin.

The distinction between the function of the college and that of the university, which becomes clearer day by day to the student of education, has thus far proved too subtle to reach the understanding and too commonplace to satisfy the pride of the American people; for the existing terminology inextricably con-

fuses colleges and universities, and sometimes even institutions that are little more than secondary schools, and it taxes the patience and skill of the expert to disentangle them. If we cut the Gordian knot by allowing every institution founded for any form or phase of higher education to classify itself by the name that it assumes, then there are no fewer than 134 universities in the United States.[1] Of these, 7 are in Illinois (although the new University of Chicago was not included in the enumeration of 1890–91), 8 are in Kansas, 14 are in Ohio, 9 are in Tennessee (of which total the city of Nashville alone, with about 80,000 inhabitants, contributes 3), 8 are in Texas, and 4 are in the city of New Orleans. When this surprising number is compared with the total of 20 universities for the whole German Empire, it is evident, without further investigation, that there is some difference in standard between the two countries, and that to be a university in fact is something more than to be a university in name.

[1] *Report of the Commissioner of Education*, 1890–91, pp. 1398–1413.

According to another extreme view, there are no American universities whatever. Only two years ago so distinguished an authority as Professor von Holst, formerly of Freiburg but now attached to the University of Chicago, said:[1] —

"There is in the United States as yet not a single university in the sense attached to the word by Europeans. All the American institutions bearing this name are either compounds of college and university — the university, as an aftergrowth, figuring still to some extent as a kind of annex or excrescence of the college — or hybrids of college and university, or, finally, a torso of a university. An institution wholly detached from the school work done by colleges, and containing all the four faculties organically connected to a *Universitas literarum*, does not exist."

Inasmuch as there is no common agreement among Europeans as to what the term "university" means — as may readily be seen by contrasting the University of Oxford with the University of France, and either or both with

[1] *Educational Review*, V, 113.

the University of Berlin — Professor von Holst obviously meant by European, German; and his definition of a university bears out this interpretation. With this limitation his judgment may be accepted as technically correct; but it rests upon two false assumptions: (1) that exact reproductions of the German universities should be developed in the United States, and that until this development takes place there will be no American universities; and (2) that the American college is to be classed with the German gymnasium as a secondary school. Into these two blunders those observers of American educational organization who occupy the exclusively German point of view habitually fall; and in more than one instance the truest and most natural development of higher education in America has been impeded and retarded by the attempt, on the part of those who share Professor von Holst's errors, to force that development into the exact channels worn by German precedent.

The American university may, or rather must, learn the lessons that its German predecessor has to teach, but it should be expected

to develop also characteristics peculiar to itself. In order to become great — indeed, in order to exist at all, — a university must represent the national life and minister to it. When the universities of any country cease to be in close touch with the social life and institutions of the people, and fail to yield to the efforts of those who would readjust them, their days of influence are numbered. The same is true of any system of educational organization. For this reason alone, if for no other, an educational organization closely following the German type would not thrive in America; indeed, with all its undisputed excellences, the German system would not meet our needs so well as the yet unsystematic, but remarkably effective, organization that circumstances have brought into existence. Therefore Professor von Holst is not likely at any time to see a single university in the United States, if he persists in giving to that word its technical German significance. But using the word in a broader, and, I believe, a truer sense, — the sense that, while not confounding it with a college, however

large or however ancient, nor applying it mistakenly to a college and a surrounding group of technical and professional faculties or schools, yet extends the term to include any institution where students, *adequately trained by previous study of the liberal arts and sciences*, are led into special fields of learning and research by teachers of high excellence and originality; and where, by the agency of libraries, museums, laboratories, and publications, knowledge is conserved, advanced, and disseminated, — in this sense one may perhaps count six or eight American universities in existence to-day, and half as many more in the process of making.

To confuse the American college with the German gymnasium is inexcusable. Neither a large college like Princeton, nor a smaller one like Williams or Bowdoin, can be imagined as part of the gymnasial system. The American college is, in the phrase of Tacitus, *tantum sui similis*; neither the English public school, the French lycée, nor the German gymnasium, is its counterpart. Its free student-life and broad range of studies liken it

in some degree to a university; but the immaturity of its students, the necessarily didactic character of most of the work of its instructors, and the end that it has in view, mark it off as belonging to a different type. The college has proved to be well suited to the demands of American life and to be a powerful force in American civilization and culture. Its usefulness is in no wise impaired nor its dignity lessened now that the university, with a wholly different aim and a totally different set of problems to solve, has grown up by its side. As President Hyde, of Bowdoin College, has truly and forcibly said:[1] "For combining sound scholarship with solid character; for making men both intellectually and spiritually free; for uniting the pursuit of truth with reverence for duty, the small college [and the large as well], open to the worthy graduates of every good high school, presenting a course sufficiently rigid to give symmetrical development and sufficiently elastic to encourage individuality along congenial lines, taught by professors who are men first and

[1] *Educational Review*, II, 320, 321.

scholars afterwards, governed by kindly personal influence and secluded from too frequent contact with social distractions, has a mission which no change of educational conditions can take away, and a policy which no sentiment of vanity or jealousy should be permitted to turn aside."

In 1891 there was one student enrolled in a college of the liberal arts and sciences for every 1363 inhabitants of the United States.[1] Counting five persons to a family,[2] this means that one family in every 272.6, the country over, contributed to the college population. Of course, in some sections of the country the ratio was much less. In Massachusetts, for example, there was one college student for every 858 of population, or one for every 171.6 families. In Iowa the proportion was one to 908 persons, or 181.6 families; in Utah, one to 789 persons, or 157.8 families. These statistics, read in relation to the vast

[1] *Report of the Commissioner of Education*, 1890–91, p. 827.

[2] The actual ratio in the United States in 1890 was 4.93 (see *Abstract of the Eleventh Census*, 1890, p. 54).

extent of the territory of the United States and to the heterogeneousness of its population of 70,000,000, are ample proof, if proof were needed, that the college is a very familiar feature in American life, and that it supplies the educational needs of the people to a remarkable degree.

Of the 481 American colleges, perhaps no two have precisely the same course of study or the same equipment; but the common features that distinguish them are well known. The ancient classics, mathematics, the English language and literature, the modern European languages, the natural sciences, economics and philosophy, are doubtless represented to some extent in every college curriculum; yet every phase of educational opinion and every variety of local interest are represented in the details of their arrangement. But we may be sure that wherever it is found, whether on the Atlantic seaboard, in some inland town of the West or South, or on the Pacific slope, the college is a force making for a broader intellectual life and a higher type of citizenship. It leaves to the university the task of

educating specialists, investigators, and scientifically trained members of the learned professions.

The diversity of the college when contrasted with the uniformity of the gymnasium makes it plain that the American university does not rest upon any uniform and closely controlled foundation. American students come to the university with very varied preparation in knowledge and training. But if the healthy forces recently set at work in the field of American higher education bring about their legitimate results, the efficiency of the university and its power for good will be distinctly increased rather than diminished by the fact that its students are not all cast in a common mould. The principles of the limited election of studies and of the adaptation of the curriculum to the pupil, rather than the pupil to the curriculum, are as sound when applied in the secondary school as in the college, and the scope of their application widens year by year. The American college graduate who desires a university career is thus enabled to enter upon it a

broadly and liberally educated man, with tastes formed and aptitudes developed, ready to undertake with immediate advantage the specialized work for the sake of which the university exists. He is much more widely, though perhaps less minutely, trained, than the German *Abiturient.*

In one very important respect the American system of higher education is distinctly superior to the German. In Germany a clear-cut dividing line between the gymnasium and the university is drawn by the complete and carefully preserved difference in method, in spirit, and in ideal that exists between them. The contrast between the narrowness of the gymnasium and the generous freedom of the university is very sharp, and many a university student loses his balance entirely, or wastes much precious time and force, in adjusting himself to his totally new surroundings. In America, on the contrary, the college and the university sometimes exist side by side in the same corporation, as at Harvard, Johns Hopkins, Columbia, and Chicago, and the work of the one passes gradually and insensibly into that of the other.

Even when, as is generally the case, the college exists as a thing apart, the later years of its course of study are so organized and conducted as to make the transition from college to university easy and natural. This practice is sound in psychology, sound in economics, and sound in common sense. Its practical success is amply demonstrated by the fact that there is no American university — unless that name be given to the few partially developed departments of study represented at Worcester, Mass., — that is not in the closest relation to a college which is a member of the same corporation. The institutions that to Professor von Holst are "compounds of college and university" are, therefore, not, as he evidently thinks, compounds of gymnasium and university, but the peculiar product of the American educational organization and its peculiar strength.

But though the foundation on which university work in America rests, differs and will continue to differ from that provided in Germany by a uniform system of state-controlled gymnasiums, the university itself is essentially the same; indeed, its organization has been

effected largely by men who had studied in the German universities, and who desired to develop in the United States a similar vehicle for the highest form of the scientific activity of the nation. The three fundamental principles that the German universities have established and brilliantly illustrated, Lehrfreiheit, Lernfreiheit, and the pursuit of science for its own sake, are fully recognized in the American universities; although it cannot be said that the third principle is as fully lived up to as it ought to be. Professor Paulsen has himself pointed out in his latest publication on the subject[1] that the peculiar character of the German university lies in the fact that it closely connects research and teaching. At present complaint is made that the one aim, research, is too largely pursued at the expense of the other, with the undoubted result, as a German university professor admits,[2] that, considered merely as teaching institutions, the American universities surpass the German in efficiency.

[1] *Deutsche Rundschau*, September, 1894.

[2] Professor Hugo Münsterberg, quoted in *Educational Review*, VII, 204.

The emphasis often laid on teaching, at the expense of research, in the American universities is largely due to the fact that the older generation of American university professors are men who were for many years engaged in the work of purely collegiate teaching, and they have neither outgrown nor cast off the habits and methods of years, nor combined research with teaching in any marked degree. This, of course, is quite as much to be deprecated as an exaggeration of the opposite tendency. The younger generation of university teachers, however, a large proportion of whom have been trained in Germany, combine research with teaching in almost every instance; though, happily, research is not yet reduced to work with "the lens, electrode, test-tube, and psychometer," which apparently seems to Dr. G. Stanley Hall to cover the field of possible investigation.[1] It is possible, of course, in the enthusiastic devotion to research to overlook entirely or to minimize the need of good teaching in universities, and also to exaggerate

[1] See "Research the vital spirit of teaching," *The Forum*, August, 1894.

the influence of research in producing good teachers; but from present indications, this is not a source of immediate danger in the United States. Our wisest university teachers are in agreement with Virchow, who said recently[1] that the aim of university study is "general scientific and moral culture together with the mastery of one special department of study."

The main obstacle to the full establishment in America of the pursuit of science for its own sake, as a controlling university principle, is the development and rapid growth of technical schools, with low standards of entrance, in connection with universities, and their admission to a full and even controlling share in university legislation and administration. Indeed, in this lies the chief danger to the integrity of American university development. Thus far the Johns Hopkins University has escaped these influences entirely, and Harvard University has been able to hold them in check. But at some other institutions they are strong and menacing. The danger consists in allowing the claim that closely specialized work in a

[1] *Lernen und Forschen* (Berlin, 1892), p. 8.

purely technical or professional branch, entered upon without any broad preparatory training whatever, is to be regarded as legitimate university work and entitled to the time-honored university recognition and rewards. It need hardly be pointed out to the intelligent reader that the tendency to do this is under full headway in the United States, and that its essential narrowness and philistinism increase with its success in establishing itself. The general public attribute unmerited scientific importance to technical schools established in connection with colleges and universities because of their large enrollment; and governing boards look upon them with favor both because of the influence they exert through their graduates and because they are often important sources of revenue. Both facts tend to divert attention and funds from the pursuit of science as an end in itself, and to keep that principle from controlling university policy as it should. The difficulty would be diminished, and perhaps removed, if these technical schools (law, medicine, technology, and the like) were put upon a true university basis by insisting upon

a liberal education as a prerequisite for admission to them. This would bring about a condition analogous to that which prevails in Germany, and would raise the American universities to a plane that they have never yet occupied. For, with the exception of the medical school at the Johns Hopkins University and the law school at Harvard, there are no professional schools in America of university rank. The others, without exception, admit to their courses and degrees immature students who have had only a partial secondary school training, or often no training at all. When such a state of affairs exists within a university organization, it is apparent that the technical or professional schools are an injury rather than a legitimate source of pride and strength, no matter how many hundreds of students they may attract. Indeed, the larger they become the greater is their influence for evil, for their teaching is necessarily brought down to the level of the least-trained intelligences among the heterogeneous body of students, and in this way the standard of the whole university is lowered.

So far as this tendency exists in the case of schools of applied science, it must be confessed that its existence is largely due to the attitude of the partisans of the old-fashioned uniform college course. By refusing to mathematical and scientific studies an equal place by the side of Greek and Latin, they forced the schools of science to establish themselves — in many cases on the narrowest possible educational basis — outside of the college and in competition with it; when, with a broad and generous treatment of the problems involved, the scientific or technical course might have been grafted on the college in a way that would have been of inestimable value both to the technical school and to the college, and greatly to the advantage of the cause of liberal education. The time when this could have been accomplished easily is past; but it can yet be brought about if undertaken in the right spirit and with wisdom.

It is seemingly impossible for universities generally to raise their schools of law and medicine to university rank in the face of public indifference as to the educational quali-

fications of lawyers and physicians. How long this indifference will continue unmoved, there are no means of determining. Here and there efforts are making to insist upon some portion, at least, of a secondary education as a qualification for admission to schools of law and medicine. But as a rule admission to the practice of those professions is open to any one, however ignorant, who will serve a short term of apprenticeship. This arrangement is sometimes defended on the ground that many men have in the past greatly distinguished themselves as lawyers or physicians, though without any liberal education whatever. This is true, but they were rare exceptions; and they become rarer each year as competition grows closer and more pressing. So far as law, at least, is concerned, one reason for the prevailing laxity may be found in the fact that this profession offers the easiest mode of entrance into politics; and to engage in that field of activity is often a chief aim in the minds of many young men who have no desire for a liberal education. But whatever public opinion may rest satisfied with, it seems indis-

putable that universities owe it to themselves to put their stamp upon no graduates in law, medicine and technology who are not liberally educated men.

When the technical and professional schools shall have been raised to true university rank, one series of problems will be solved; but others will remain. It is as necessary in America as Paulsen describes it to be in Germany, to conserve the unity of the university about the historic faculty of philosophy as a centre. This faculty is at once the essence of a university and its true glory. Standing alone it may justify the title university, as the history of the Johns Hopkins University for twenty years amply demonstrates. But to make it subordinate or to keep it weak and unimportant, whether by subdivision or other means, is to sap the university's life-blood. The faculty of philosophy represents, when undivided, the unity of knowledge and the true catholicity of scholarly investigation. Through it each department of study is kept in sympathy with its fellows, and each strengthens and supports the rest. When dissevered, its parts

tend to become mere *Fachschulen;* and the highest ideals of university life are sacrificed. No stronger evidence in support of this opinion can be cited than the emphatic statements on the subject made by du Bois-Reymond, the physiologist, and by Hofmann, the chemist, in their inaugural addresses on assuming the rectorship of the University of Berlin in 1869 and 1880, respectively. These are the words of du Bois-Reymond: "The philosophical faculty forms the connecting link between the remaining faculties. . . . The reciprocal action of the different branches of human knowledge which takes place within the philosophical faculty, would naturally be lost with its division, but this mutual influence contributes very much to widen the vision of the individual, and to preserve in him a right judgment of his position in relation to the whole. The two divisions of the faculty would finally approach the character of special schools; the ideal stamp of the whole would be destroyed."[1] And eleven years later Hofmann defended the same position with equal vigor.

[1] *Ueber Universitäts-Einrichtungen* (Berlin, 1869), p. 15.

The faculty of philosophy, or of arts and sciences, must not only be preserved in its integrity, but its spirit must dominate the whole university. As has recently been officially pointed out,[1] "The safety of the university spirit demands that the university proper [the faculty of philosophy] be counted as one part, and the collected schools [technical and professional] together as another rather than that each professional and technical faculty shall claim a coördinate right with the foundation faculty, which would thus be made, not a half, but a seventh (or possibly one-twentieth, as the schools multiplied) of the university which but for it could have no real existence." This is still another lesson that the administrators of American universities have yet to learn.

One other danger, common to all universities, whether German or American, lies in the excessive specialization which is so often warmly recommended to university students. Its inevitable result is loss of ability to see things in

[1] See *Report of the Secretary of the University of the state of New York for* 1893, p. 176.

their proper proportions, as well as loss of sympathy with learning as a whole. Perhaps the division of labor cannot be carried too far for the value of the product, but certainly it can be carried too far for the good of the laborer.

> "Denn nur der grosse Gegenstand vermag
> Den tiefen Grund der Menschheit aufzuregen,
> Im engen Kreis verengert sich der Sinn."

Signs are not wanting that this narrowing of view and of sympathy is already taking place; but the university has in the faculty of philosophy the means to correct it if it will. What science and practical life alike need is not narrow men, but broad men sharpened to a point. To train such is the highest function of the American university; and by its success in producing them must its efficiency be finally judged.

THE FUNCTION OF THE SECONDARY SCHOOL

An Address

delivered before the

Schoolmasters' Association of New York and vicinity,

March 8, 1890

THE FUNCTION OF THE SECONDARY SCHOOL

Matthew Arnold has reminded us that the secondary school is the most ancient of existing educational institutions. It antedates the university by several centuries; and by its side the primary or elementary school, springing as it does from needs and ideas that are comparatively modern, seems but a creature of yesterday. Moreover, the history of the secondary school is unbroken and easily traceable. The monastery schools and the famous establishments at St. Gall, Reichenau, and Fulda are the direct ancestors of our Etons and Rugbys, of our contemporary lycées, gymnasia, and academies.

In the United States the educational organization is so indefinite and unformed, and the educational terminology in common use so un-

systematic, that certain explanations are necessary before any discussion of the province and scope of the secondary school may be undertaken. The threefold division of instruction into primary or elementary, secondary, and superior, has been accepted by the Bureau of Education at Washington, and is in accord with the practice on the continent of Europe. By superior instruction is meant that given in institutions empowered by law to confer degrees. This may be either general or special, and includes in this country the colleges and universities as well as the professional schools of law, medicine, theology, education, agriculture, pharmacy, engineering, and the like. The implication is, though unfortunately not always the fact, that these institutions for superior instruction have required of applicants for admission the possession of an approved secondary education. By primary or elementary instruction is meant such as the state is justified in requiring of all children for its own safety and perpetuity. In the present state of educational science this may safely be held to include a knowledge of reading and writing,

and some instruction in elementary arithmetic, geography, history, natural science, and manual training. This elementary education should begin not later than the sixth year of life and with the average child seven years may be devoted to it, although specially intelligent or studious children may be permitted, as in France, to complete the prescribed studies in less time.

It would seem natural, then, that the field of secondary instruction should be that which lies between the elementary and the superior schools. But this is not quite true. There is and can be no sharp line of division between the various grades of instruction. They pass gradually, even insensibly, into each other. In order to prevent the pupil's development from being arrested and his capacity for education from being brought to an end, he must constantly be led on to new heights. For this reason certain studies, usually classed as belonging to secondary education, such as algebra and a foreign language, are very appropriately taught in the upper grades of the elementary school. A beginning in the field of secondary

studies is therefore made before the limits of the elementary school are reached, and by the time that the pupil is twelve, eleven, or even ten years of age. This is actually the case with the French lycée and the Prussian gymnasium.

At the upper end of the secondary school course a similar condition is found. There is no reason why many secondary schools, particularly public high schools, over 60 per cent. of whose graduates do not go on to a higher educational institution, should not give instruction in subjects such as logic, political economy, and trigonometry, which are contained in every college course. Unless this policy is adopted, the vast majority of American boys and girls will be deprived of all opportunity to come in contact with these studies and others like them.

In the past the secondary school in this country has been very often dwarfed in importance and deprived of its proper spontaneity and individuality, because it has permitted itself to settle down to the routine task of preparing pupils for entrance examination to

college, fixed and conducted by the college authorities. Whatever that entrance examination demanded, and in some cases just a trifle more, has been taught; whatever such examination did not call for, no matter how important or valuable it might be for a boy's education, has not been taught. The secondary school has been too largely dominated by the college; and in few cases has that domination been other than unfortunate. As notable instances of the contrary effect may be mentioned the stimulating influence of the more recent regulations regarding entrance examinations adopted by Harvard College, particularly in geometry and in physics, and the novel unity and thoroughness imparted to the instruction in English in the secondary schools by the action of the colleges in uniting with the schools in deciding upon a uniform scheme of requirements for entrance in that subject.

It is neither proper nor dignified for the secondary schools to continue in this condition of dependence upon college entrance examinations. They should be independent

and self-centred. By a careful study of the history and principles of education, coupled with the teachings of their own large experience, they should seek to devise that course of study and those methods of instruction that are best suited to the mental, moral, and physical development and culture of the boys and girls committed to their care. Nor need it be feared that in so doing they will interfere in any way with the preparation of their pupils for college work. For in education it is profoundly true that that which is intrinsically the best in any particular stage of development, is also the best preparation for that which comes after.

If the American boy is to obtain his baccalaureate degree at the age of twenty or twenty-one (which is considerably more than a year later than the French boys leave the lycée and the Prussian boys the gymnasium), he must be ready to enter college not later than seventeen; and this can be managed while actually providing for the secondary school a more comprehensive curriculum than at present obtains. Before discussing in de-

tail the composition of such a curriculum, one or two preliminary considerations must be mentioned. They may, however, be dismissed very briefly, since they have so recently been treated with the highest authority by President Eliot.[1] The first of these has to do with the length of the school day and that of the vacations. The former should never be less than five full hours of study and school discipline ; the tendency to shorten it any further is irrational and should be checked. A programme arranged on sound educational principles can occupy five hours a day easily enough without in any way impairing the pupil's health or lessening his interest, unless the teacher is peculiarly lacking in mental equipment and professional qualifications. The vacations are now unduly long, and seem to be yielding to a certain strong social pressure to make them even longer. The old-fashioned summer vacation of four or six weeks has long since become one of ten or twelve, and in our city schools

[1] Can school programmes be shortened and enriched? *Atlantic Monthly*, August, 1888, pp. 250–258.

a summer vacation of fifteen or even sixteen weeks is by no means a curiosity. It is the teacher who needs this vacation more than the pupil. But even from his standpoint the present practice has gone beyond reasonable bounds. The German method of giving three weeks at Easter, one at Pfingster, six in midsummer, one at Michaelmas, and two at Christmas seems wiser than ours, for it makes a more frequent alternation between work and play. Perhaps sixteen weeks — including the recesses at Christmas and Easter and a long summer vacation, as better suited to our climate and habits of life than the German plan — might be agreed upon as the maximum period in which school duties may wisely be suspended each year.

But in addition to the school year of thirty-six weeks and twenty-five hours in each week, the secondary schools are sadly in need of better trained teachers. It is remarkable how entirely the teachers in these schools have remained uninfluenced by the great interest in the science and art of teaching which has of late years manifested itself both in this

country and in Europe. Secure in their possession of a considerable amount of knowledge and of more or less culture, the secondary school teachers have not seemed to understand the significance or the value of a professional preparation. As a result their work has been done in a routine, imitative way and their pupils have suffered. Most of the criticisms that may now be legitimately made upon the work of the secondary schools would be disarmed if the teachers in these schools were abreast of the present development of their art. One important reason why the secondary schools have not felt this full measure of progress in methods of teaching that is so marked in the elementary schools, is that secondary teachers are usually college graduates, and the colleges have, until very recently, done so little to show that they are aware of what is being accomplished in the study of education. Consequently they have failed to contribute their proper proportion of duly qualified teachers. Until the colleges assume their full responsibility in this matter and endeavor to discharge it, the work of the sec-

ondary school, speaking broadly, will not be as well done as it might be.

Assuming that more competent teachers are at hand and that a school year of thirty-six weeks of twenty-five hours each is agreed upon, what should be the aim of the instruction in the secondary school and with what curriculum should it endeavor to accomplish it? It should be the aim of the secondary school, I take it, by instruction and discipline to lay the foundation for that cultivation and inspiration that mark the truly educated man. In endeavoring to attain this ideal, the secondary school must not lose sight of the fact that it is educating boys who are to assume the duties and responsibilities of citizenship, and who must, in all probability, pursue a specific calling for the purpose of gaining a livelihood. The fact that the secondary school has also a selective function to perform is often overlooked. Yet this is most important. Secondary school pupils are adolescents, and their tastes and capacities are rapidly forming and finding expression. To afford opportunity for these to develop, and to encourage them to

develop along the best and most effective lines, is an obvious duty of the secondary school. Because they are not selective, many secondary courses of study are very ineffective.

To prepare a course of study which shall keep all these points in mind, and at the same time afford the developing intellect of the pupil that exercise of which it is capable, is not an easy task. Indeed, it presents some problems which but a little while ago seemed almost impossible of solution. But patience, wider experience, and a careful study of the surrounding conditions have lessened the difficulties. The chief of these is perhaps that created by the rapid development and present importance of scientific and technical schools. These institutions represent a real and significant movement in modern civilization. They have complicated the question of a curriculum for secondary schools by demanding a preparation quite different from that required for entrance to the average American college. That the problem thus raised belongs to the field of secondary education in general and is not due to conditions prevailing in any one country

alone, is shown by the fact that England, Germany, and France have all been brought face to face with it as we have been. In each of these countries much progress towards its solution has been made. In England the so-called "modern side" has been added to the traditional classical course. In France the lycée has its *cours spécial* in which mathematics and the sciences replace Latin and Greek. In Germany the well-established real-gymnasium and real-schule are every year justifying their right to exist on an equal plane with the gymnasium itself. A specially interesting movement in this connection is one in Germany which has for some time past been calling for the establishment of an *Einheitsschule*, in which the main features both of gymnasium and real-schule are to be combined.

The course of study that I would suggest for the typical American secondary school is one in which nine elements are always represented: namely, the mother-tongue, geography and history, natural science, mathematics, Latin, Greek, French and German, drawing and constructive work (manual train-

ing), and physical training. It combines some features of the English "modern side" with some of those of the French *cours spécial*, and is not unlike what German students of education have in mind under the name of *Einheitsschule*. It involves beginning the study of one foreign language at ten or eleven years of age, and the elements of algebra and of plane geometry shortly afterward. Ample choice would be permitted to students, provided only that not more than five so-called "book" subjects were carried on at once, that no two new languages were begun at the same time, and that English, geography and history, and natural science were always represented. Pupils of a different temperament, of different points of view, and with different purposes in life would be guided to express and to satisfy themselves to the fullest extent possible. The ability to read intelligently, to write legibly, and to perform understandingly and correctly with integers the four fundamental operations of arithmetic, must be insisted upon at ten years of age.

The growing practice of postponing even

this modicum of knowledge until after the tenth year is to be emphatically discouraged. Attention has recently been called to the fact that one of the best-known academies in the United States requires for admission only some knowledge of common school arithmetic, writing, spelling, and the elements of English grammar, and that the average age of pupils on entering is sixteen and one-half years. At this age the French boy is reading Cicero, Virgil, and Horace, Sophocles and Plato, Shakspere and Tennyson, as well as studying general history, solid geometry, and chemistry. His German contemporary is similarly advanced. It is very evident that at this point there is a tremendous waste in our educational system. It must be remedied and remedied speedily, if our higher education is not to be discredited altogether.

What I intend to include under each of the topics of study above enumerated may be briefly outlined.

1 *English*—The study of the mother tongue must not be neglected by any class of students. But it must be far better taught than now and with a different aim. That the instruction in

English, both in school and college, has been sadly neglected and little developed in the past, will not be denied. Perhaps no one but the college professor who requires original written work from his pupils, knows how insufficient and inefficient the English teaching in the secondary school is. A very large proportion of those students who reach the baccalaureate degree do not possess the ability to express with accuracy and conciseness, whether orally or in writing, even a simple train of thought. This woeful neglect of the mother tongue has been largely due, as Paulsen points out is the case in Germany, to the great preponderance of classical instruction and the impression that this afforded all the linguistic training necessary. We have gradually emancipated ourselves from the tyranny of this notion; and now the long-neglected study of the mother tongue is beginning to receive proper recognition in schools of every grade. Our ideals for this study are no longer satisfied by the plodding through a grammar and by the memorizing of a few rules and canons of rhetoric. Language study, and particularly that of a tongue so rich, so versa-

tile and so intrinsically interesting as our own, means far more than that.

The general aim of this instruction in the secondary school should be to impart a knowledge of the principal laws of structure and syntax, to develop ease, fluency, and correctness in speaking and writing, to point out the principal stages in the history of English literature, and to bring the pupil to an acquaintance with some of the great masterpieces of prose and verse. Wide but carefully chosen reading and frequent and systematic exercises in composition are the most efficient means of instruction. It should be remarked, however, that composition writing is valuable only if the pupil's work is carefully and intelligently corrected and criticised. Otherwise it is a positive evil, for it serves to exaggerate and make habitual faults already present in the use of language. It is of the highest importance that the pupil should be accustomed to hear correct English spoken. Downright inaccuracy of speech should be considered sufficient reason for a teacher's removal. A boy will learn more evil in a week from a bad example than he will derive good

from a book in a month. Most language instruction should be oral and the pupil should from the very first take a large part in the exercises. As language is but the form and expression of thought, care should be taken to see that thought is always expressed by it. This cannot be the case if the pupil is forced ahead either too rapidly or in an unnatural course. The amount of time proposed for this branch of study is therefore comparatively large, and no class should be relieved of the necessity of writing dictations-exercises or compositions at least as often as once a week. When this is done and done properly in the secondary school, the college instruction in English may enter upon that which really belongs to it, and will no longer be compelled to devote itself, as now, almost wholly to what President Charles Kendall Adams once happily described as "the flagellation of bad English." Nor should it be forgotten that the secondary school must bear its share in teaching pupils how and what to read, in the best and deepest sense of that phrase. No English instruction is entirely successful unless it implants in every pupil

a love of the masters of thought and style and a desire to grow more and more familiar with them.

2 *Geography and History* — These complementary studies, inseparable from each other and indispensable to a sound education, have also been sadly neglected in the secondary schools. We might truthfully say of the Americans, as Bréal said a few years ago of his fellow Frenchmen, that they are celebrated for their ignorance of geography. The subject has been so badly taught that it might almost as well have been passed over altogether. We are now beginning to follow the example set us by Germany in teaching geography, and perhaps in a few years it will be adequately presented in the schools. Geography has two distinct aims. It seeks to point out and describe the character, the divisions, the climate, and the configuration of the surface of the globe that we inhabit, and also to trace the modifications which man himself has made and the artificial divisions that he has marked off upon it. When dealing with the former questions geography is physical; when considering the

latter it is political and commercial. It thus occupies a position between the natural and the historical sciences and connects the two.

When geography is properly taught, the child is first led to observe his immediate surroundings. The points of the compass, relative situations and distances, the real significance of a map, may all be taught and best taught with reference to the city, town, or village in which the particular school is situated. The schoolroom should be well supplied with globes, relief maps, charts, and other illustrative material, in order that, when the pupil passes from the consideration of his immediate surroundings to that of localities at a distance, his understanding may receive the assistance of these symbolic representations. When political and commercial geography is undertaken, its close relation with history makes it both advisable and necessary to teach both subjects together. Perhaps no study that is pursued at this age brings to the pupil a richer store of facts or a greater intellectual stimulus than do these. Historical teaching proper will of course begin with the narration of the lives of great men and the

story of their achievements. About this as a nucleus may be grouped a considerable body of facts and an account of the tendencies set in operation by leaders of thought and action. This mode of presentation familiarizes the pupil from the first with the human factor, the spiritual force, in history. The scope of the historical teaching in an American secondary school should include an accurate knowledge of the main facts in the history of the United States and of England, as well as a general acquaintance with the progress of universal history.

3 *Mathematics* — Whether or not Sir William Hamilton was justified in his unfavorable judgment as to the value of mathematical study, it seems clear that our schools have devoted too much time to the subject. Under the guise of mathematics much has been taught that is not mathematics at all. Abstruse and very absurd problems and puzzles in logic are to be found in almost every mathematical text-book under the delusive heading of "Examples." These simply vex and discourage the student and arouse in him a

distaste for what is really valuable and practical in mathematical study. They should be passed over entirely, as should also many of the complexities of commercial arithmetic, and all but three or four of the tables of weights and measures. The metric system must be taught as a matter of course. The elements of plane geometry should precede algebra for every reason known to sound educational theory. It is more fundamental, it is more concrete, and it deals with things and their relations rather than with symbols. In the form of what the Germans call *Raumlehre*, many geometrical facts would be taught from the first, in the proposed curriculum, under the head of drawing and constructive work. When the formal proofs of geometry are later entered upon, they will therefore be seen to be easy and natural, rather than difficult and wholly strange. Good teaching in mathematics should enable the student who follows a classical course during the last three years in the secondary school, to enter college with a good understanding of arithmetic, algebra and geometry, both plane and solid. The

student selecting a scientific course in the secondary school could add to this a knowledge of analytic geometry, of trigonometry, and perhaps of determinants as well.

4 *Natural Science* — This is a term of wide and varying significance. As used here, it has two meanings. During the earlier years of the course, it is equivalent to the term *Naturbeschreibung* as used in German school-programmes. Applied to the later years, it means the experimental study of chemistry and physics. In the lower grades it is not specifically physics or chemistry or geology or botany or physiology or astronomy that is studied, but something of all these. The subject-matter is found in the facts of nature which surround the child on every hand, and which should be as familiar to him as the names he hears. This instruction aims to open the pupil's eyes, to teach him how and what to see, and to appreciate what the word nature means. It is the most fascinating of school studies; and it complements and runs into almost every other subject.

5, 6 *Latin and Greek* — In the secondary

schools of Europe, Latin still occupies the leading place. Greek is begun later than Latin, and when the Latin is well taught Greek needs less time and effort for the mastery of so much of it as is desirable during the period of secondary instruction. Inasmuch as both serve practically the same purpose in education, they may properly be spoken of under a single head.

It seems quite safe to predict that no culture will ever be considered broad and deep unless it rests upon an understanding and appreciation of the civilizations of Greece and Rome. Whether such culture is necessary or even desirable for the great body of the population, and whether the classics are properly taught or not, are very different questions from that which is raised as to their educational value. It is only as respects one or the other of the former that recent criticism and attack have been in any degree successful. The classics have suffered from being forced upon those who cared nothing for them and would care nothing. They have also suffered, and very severely, through the

waste of time they have involved. But both of these objections may be removed without weakening in any degree the position of the classics. To the charge of bad and wasteful methods of classical teaching, much of it done under the guise of thoroughness, the schools must plead guilty. They have been endeavoring to make philologists out of the material afforded by the average schoolboy. The greatest value of the classics is found in the ability to read and understand the great poets, philosophers, and historians who wrote for all time in the Greek and Latin tongues. The boasted discipline of classical study for the attention and reasoning powers may be quite as well obtained from studies which touch more closely the practical life of the great mass of the population. This argument is, therefore, not only unsound, but needless for the classicist to use, since he has at his command others that are stronger and more effective. To know something of the spirit of Sophocles, Demosthenes, and Plato, of Cicero, Horace, and Tacitus, and to understand the civilizations and the points of view that they

represent, are, from one point of view, almost enough to give the fortunate one a claim to culture. The wearisome grammatical drill and the tedious reiteration of details that are relatively of little value, save in so far as these are absolutely necessary to enable the pupil to read intelligently, are out of place in secondary education. The proper aim of classical instruction at this period is stated with great clearness and force in the comments on the course of study furnished by the Prussian Minister of Public Instruction to the teachers in the most successful secondary school yet devised, the gymnasium. The Minister says: —

"So far as the end to be attained by a knowledge of language is concerned, it is hardly necessary to adduce arguments to justify the proposition that the acquisition of a vocabulary is of at least as much importance as familiarity with grammatical details. For it is just by means of this vocabulary that satisfaction is gained as facility in reading is acquired; by means of it, too, interest in reading extends beyond the period of school life. The aim of the gymnasium is not, however, attained when the pupils are able merely to read works of a certain degree of difficulty. Emphasis is much rather to

be laid upon the fact that they have read works of a certain scope and character, and upon the manner in which they have read them. As regards the method of reading, two points must be kept in mind; it must be based upon verbal accuracy and it must lead to an appreciation of the thought which is expressed and the form chosen for its expression. On the former consideration rests the disciplinary value of the classics; on the latter the basis of that which, when fully developed, is designated as classical culture. A treatment of this reading which neglects grammatical and lexical exactness, leads to superficiality; a treatment which makes the acquisition of grammatical and lexical exactness the main aim of reading, overlooks a fundamental reason for the teaching of Latin in the gymnasium. Special attention must be called to this latter error, for it endangers both the interest of the students in the study of the ancient languages and the reputation of the gymnasium among its most thoughtful supporters, by turning the teaching of the classics, even in the highest grades, into a mere repetition of grammatical rules and a memorizing of minute details as to synonyms and style."

This applies to the United States quite as well as to Prussia, and to the study of Greek

as much as to that of Latin. When these directions are followed it will be easy enough to read considerably more of the classics than is now done in the secondary schools, and to do it in the time at the teacher's disposal. It may also be observed that the grammatical details of different languages, when alike, should be studied once for all and not repeated for every new language taken up. Devices for carrying out this suggestion have been prepared under the form of parallel grammars and are now used in a few schools both in this country and in Great Britain.

As a rule the classical teacher has not appreciated the changed educational conditions and the new demands made upon the schools. He has therefore provoked antagonism when he should have invited coöperation. He must recognize that while the secondary school cannot dispense with the classics, it can no longer be completely dominated by them.

7 *French and German* — These are indispensable in the secondary school. It was Goethe who said, "A man who knows only his own language does not know even that."

One modern language should be begun early and studied continuously for several years. To some it may seem a matter of indifference whether French or German is first taken up. But French seems to offer to the English-speaking student more difficulties of pronunciation and of idiom than German, and should therefore be begun before the pupil has acquired very fixed notions of grammatical and rhetorical canons. Moreover, the relation between French and Latin seems to furnish a good reason for making the two, to a certain extent, interdependent and illustrative, the one of the other. An ability to read French, to understand it when spoken, and in some measure to write it and to speak it having been attained, the mastery of a certain amount of German will involve fewer difficulties, and the boy may enter college or the scientific school with a good reading knowledge, and perhaps something more, of both of these indispensable keys to culture; or he may postpone the second modern language until the college period is entered upon.

8 *Drawing and Constructive Work* — To in-

troduce this subject generally into the secondary schools of this country would be a new departure. It is so, however, only because these schools have not been doing their duty by the pupils entrusted to them. Taken together, drawing and constructive work constitute what is properly called manual training, the educational value of which has been established beyond all contravention both by argument and by experiment. It aims to develop in the pupil powers of thought-expression that no other study reaches, as well as to train the judgment, to call out the executive powers, and to give self-confidence in dealing with actual material. It serves also to illustrate much of the instruction in mathematics and in natural science. Many secondary school pupils may wish to follow manual training beyond the mere rudiments and with more especial reference to its scientific and technological applications.

It may be added, for the sake of definiteness, that the constructive work will naturally employ for its material pasteboard, clay, soft wood, and metal, successively.

9 *Physical Training* — For obvious reasons this important subject finds a place in every part of the course. More time is to be allotted to it in the earlier years because at that time the pupil is less accustomed to the confinement of the schoolroom and to the strain of continuous mental exertion. At this stage, too, important physical habits are formed, for instance those of breathing, walking, and sitting; and when formed correctly they reduce somewhat the time necessary for systematic bodily training. Whenever possible this physical training might be given in the open air of a playground. Such an arrangement not only involves a change of surroundings and consequent rest for the pupil, but it means purer air in the lungs, purer blood in the veins, and an accompanying exhilaration that is in itself a powerful tonic, mental and physical. A valuable and indeed indispensable accessory of physical training is play, the free, unimpeded, wilful activity of the child. So great is its value that many are of opinion that it makes systematic physical training unnecessary. On this point I shall merely quote Dr. Hartwell,

who seems to me to have correctly expressed the relation between play and systematic exercise in his admirable address before the Physical Training Conference held in Boston in November, 1889. Dr. Hartwell, in speaking of this matter, said: —

"I have no disposition to disparage athletic sports. I would that they were more general and better regulated than they are in our country. I believe that they are valuable as a means of recreation; that they conduce to bodily growth and improvement; and that their moral effects are of value, since they call for self-subordination, public spirit, and coöperative effort, and serve to reveal the dominant characteristics and tendencies, as regards the temper, disposition, and force of will of those who engage in them. But they bear so indelibly the marks of their childish origin, they are so crude and unspecialized as to their methods, as to render them inadequate for the purposes of a thorough-going and broad system of bodily education. It is well to promote them, and it is becoming increasingly necessary to regulate them; but it is unsafe and short-sighted to consider them as constituting anything more than a single stage in the best bodily training."

When play and physical training are thus carefully distinguished, each is seen to have an educational function of its own and neither will be substituted for the other. Both are necessary in education.

It is believed that a course made up of these nine lines of study well distributed will meet all the intellectual wants of the boy from his eleventh to his eighteenth year, and will afford him a harmonious and complete training. Whether the pupil enters an institution of higher grade or not, he will have had an education substantially complete in itself. Yet for the studies of a higher institution he will have received an admirable preparation. The secondary school is in this way enabled to preserve its place in the general educational organization of the country without sacrificing its independence.

No less a man than Darwin has recorded the fact that his school-days, so far as his education was concerned, were an utter blank. Not infrequently men of less reputation, but yet prominent in their respective callings, express a similar opinion. This in itself is

a danger signal and must be heeded. The school may not with impunity remain long out of touch with the spirit which animates the intellectual leaders of an age or generation. Its task grows more difficult as civilization grows more complex. "The most incessant occupation of the human intellect throughout life," said John Stuart Mill in his Inaugural Address as Rector of St. Andrews University, "is the ascertainment of truth." The standards of truth and the methods for its discovery must be revealed in and by the process of education. When this process has been carried so far as to entitle the resulting education to be called liberal, as Huxley for example has defined a liberal education, the youth is prepared to live not for himself alone, but for the society of which he forms a part and for the race of which he is a member. If the secondary school fails to obtain this larger view, its training will hardly contribute to an education which shall be, in the language of Rollin, "the source of certain peace and happiness both in the family and in the state."

REFORM OF SECONDARY EDUCATION IN THE UNITED STATES

From The Atlantic Monthly, March, 1894

REFORM OF SECONDARY EDUCATION IN THE UNITED STATES

It has come to be distinctly recognized that any far-reaching educational reform in the United States must begin with the secondary schools. The elementary school is helpless if the secondary school refuses to coöperate with it in raising the standard of scholarship and in improving the methods of instruction; and but few colleges are strong enough to demand of the secondary schools more and better work than the latter are now doing. Persuasion on the part of the colleges has in some cases accomplished a good deal, but the improvement has been limited either to one or two subjects of instruction, or to the schools of a relatively small territory. The secondary schools themselves, not always conducted in a wise or generous spirit, have too often sacrificed the necessities of sound training to the local de-

mand for an ambitious programme containing twoscore or more school subjects, no one of which is pursued far enough or long enough for the pupil to derive from it the educational value it possesses. Or they have erred on the other side, and in their devotion to a past ideal have excluded from the curriculum important fields of knowledge that have grown up within a century. Thus the secondary school has appeared to many observers not only to scatter a pupil's energies and interests, but to delay him unduly. The consequence is, as President Eliot showed very clearly several years ago, that the American boy of fifteen or sixteen, no whit inferior to his French or German fellow in native ability, is from two to three years behind him in acquired knowledge.

To remedy so apparent an evil as this would be an easy task in France or in Prussia. The minister of education would consult his official advisers, and call the leading educational experts to his council; in a few weeks an order would issue prescribing for the schools a new and reformed procedure. In this way Lehrpläne and Lehraufgaben for the higher schools

of Prussia were issued in 1882, and again in 1892. Similarly, in 1890 the existing Plan d'Études et Programmes of the secondary schools in France was promulgated. In this country, however, where no central educational administration exists, and where bureaucracy is not popular, educational reforms can be brought about only by persuasion and coöperation, for no official and no institution is empowered to dictate to us. The press, the platform, the teachers' meeting, must be availed of to put forward new ideas; and men and women in large numbers must be reasoned with and convinced in order to secure their acceptance.

For secondary education, and through it for our educational organization generally, a long step has been taken in this direction by the proceedings that led up to the appointment, by the National Educational Association, of the Committee of Ten on secondary school studies, and by the exceedingly valuable report which that committee has now laid before the public.[1]

[1] Published for the National Educational Association, by the American Book Company (New York, 1894).

For thirty years the National Educational Association has been known as a large body of teachers that assembled annually to listen to addresses and discussions of more or less practical value. It has come to command an attendance of as many as sixteen thousand teachers, of all classes and from every section of the country. Its power and authority have increased with its size and its representative character. In 1892, the directors of this association determined to pass from the field of mere discussion, and begin an educational investigation, under their own auspices and paid for out of their own funds, that should result in some practical gain to the country at large. They accepted the suggestion, made to them after careful deliberation, that the problems connected with secondary education should be vigorously and systematically attacked, and appointed a committee, which has come to be known as the Committee of Ten, to take full charge of the task, at the same time appropriating twenty-five hundred dollars to pay the expenses of the work. The members of this committee were carefully selected with a view

to giving representation to the types of educational organization most interested, and to the various sections of the country.[1]

The committee was made up of one president of an Eastern university, two presidents of Western state universities and one of a Southern state university, one president of a college for women, one professor in a Western college open to both sexes, one head-master of an endowed academy, one principal of a public high school for both sexes, one principal of a public high school for girls only, and the Commissioner of Education, whose familiarity with the principles and practice of education in every part of the

[1] The members of the committee were: President Charles W. Eliot, of Harvard University, chairman; Dr. W. T. Harris, Commissioner of Education; President James B. Angell, of the University of Michigan; President James M. Taylor, of Vassar College; Mr. John Tetlow, Principal of the Girls' High and Latin Schools, Boston, Mass.; Mr. O. D. Robinson, Principal of the Albany (N. Y.) High School; President James H. Baker, of the University of Colorado; President Richard H. Jesse, of the University of Missouri; Mr. James C. MacKenzie, Head-Master of the Lawrenceville (N. J.) School; and Professor Henry C. King, of Oberlin College.

United States gave representation indirectly both to the elementary school interests and to the special students of education.

The procedure adopted by the Committee of Ten is fully described in the report to which it is the object of this paper to direct attention. It may be briefly stated thus: —

After a study of the whole problem, it was decided to appoint nine conferences of ten members each, — one conference for each of the main divisions of work that fall properly to the secondary school. The members of the conferences were selected equally, as nearly as possible, from college and school instructors who had attained a reputation in connection with the subject of their conference, due regard being had also to the representation of various educational interests and the several sections of the country. Conferences were appointed, therefore, on Latin; Greek; English; other modern languages; mathematics; physics, astronomy, and chemistry; natural history (biology, including botany, zoölogy, and physiology); history, civil government, and political economy; and geog-

raphy (physical geography, geology, and meteorology). The several conferences assembled in December, 1892, at convenient points, and eighty-eight of the ninety members were in attendance. Of these eighty-eight, forty-six were in the service of colleges and universities, forty-one in the service of schools, and one was a government official formerly in the service of a university. So admirable are the lists of members of these conferences that it is difficult to speak of them without enthusiasm. Among the ninety names will be found many that stand in the foremost rank of American scholarship; and no one of the ninety was without valuable educational experience of some kind. This fact of itself gives great weight to their recommendations; and their exhaustive reports, which are appended to the Report of the Committee of Ten, are a mine of educational information and suggestion of the utmost value.

The nine conferences were in session for three days, and addressed themselves to the task of preparing answers to the searching questions submitted to them by the Committee

of Ten. These questions, eleven in number, were as follows: —

"(1) In the school course of study, extending approximately from the age of six years to eighteen years, — a course including the periods of both elementary and secondary instruction, — at what age should the study which is the subject of the Conference be first introduced?

"(2) After it is introduced, how many hours a week for how many years should be devoted to it?

"(3) How many hours a week for how many years should be devoted to it during the last four years of the complete course; that is, during the ordinary high school period?

"(4) What topics, or parts, of the subject may reasonably be covered during the whole course?

"(5) What topics, or parts, of the subject may best be reserved for the last four years?

"(6) In what form and to what extent should the subject enter into college requirements for admission? Such questions as to the sufficiency of translation at sight as a test

of knowledge of a language, or the superiority of a laboratory examination in a scientific subject to a written examination on a text-book, are intended to be suggested under this head by the phrase 'in what form.'

"(7) Should the subject be treated differently for pupils who are going to college, for those who are going to a scientific school, and for those who, presumably, are going to neither?

"(8) At what stage should this differentiation begin, if any be recommended?

"(9) Can any description be given of the best method of teaching this subject throughout the school course?

"(10) Can any description be given of the best mode of testing attainments in this subject at college admission examinations?

"(11) For those cases in which colleges and universities permit a division of the admission examinations into a preliminary and a final examination, separated by at least a year, can the best limit between the preliminary and final examinations be approximately defined?"

The first impression produced by a study

of the reports of the special conferences is that their members addressed themselves to their task with marked skill and directness. The questions submitted to them are answered, and answered fully, and the answers are accompanied with the reasons therefor. From the standpoint of the old-fashioned preparatory schoolmaster, ignorant alike of the newer school subjects and of the newer methods of imparting life to the old ones, the changes urged by the conferences may seem many and radical. Yet it will be difficult to disprove the deliberate conclusion of the Committee of Ten that, on the whole, the spirit of the conferences was conservative and moderate. For example, the Latin conference distinctly disclaim any desire to see the college admission requirements in Latin increased. The Greek conference prefer to see the average age of entrance to college lowered rather than raised. The mathematics conference recommend the actual abridging of the time now devoted to arithmetic, algebra, and geometry. The geography conference agree that the time now spent upon that subject in the schools is out

of all proportion to the value of the results secured.

As a matter of course, the conferences that dealt with the modern languages and the several departments of natural science had the largest amount of work to do. Greek, Latin, and mathematics have been staple school subjects for generations. They are carefully organized and graded. Adequate text-books are provided. A large body of teaching experience lies behind each of them. Of the other subjects this is not true. They appear only sporadically in schools. Too often they are taught badly, and their educational value is lost. The conferences dealing with the modern subjects make it clear, in every case, how these evils may be avoided; but their reports are correspondingly longer and more minute than those on the other subjects. The conference on physics, astronomy, and chemistry, for example, append to their report an elaborate outline of experiments to be performed and topics to be taught in the secondary school. The reports from the conferences on his-

tory, civil government, and political economy, geography, and natural history are similarly detailed.

The recommendations of the conference on English will naturally be turned to first; for the tendency to emphasize the importance of the study of the mother tongue, and to improve the methods of teaching it, is now too strong and too general to be resisted, if indeed any one wishes to resist it. The report of this conference is very short, but it is extremely clear and cogent. In substance, it says that the proper use of English can be gained only by using it properly in exercises of increasing difficulty and variety. The spelling-book is discountenanced. Formal grammar is relegated to the subordinate place that it deserves. The reading-book should contain real literature, and not articles on physical science or natural history, and but little sentimental poetry. In the high school it is held that English should have as much time allotted to it as Latin, and that the two points to be kept constantly in mind, in the teaching, are the

study of literature and training in the expression of thought. All this advice is so sound that, being now given a quasi-official authority, it should be followed generally in the secondary schools, both public and private.

The fact that education cannot be cut up into artificial periods distinct in themselves is brought out by almost every conference. They agree in saying that the elementary school must improve, and must coöperate with the secondary school, if the latter is to meet the demands now made upon it. English teaching cannot be neglected from six to thirteen, if good results in it are to be obtained from thirteen to seventeen. It is facts like this that give the reports of the conferences their chief significance. Though dealing ostensibly and directly with secondary education only, they reach every nook and corner of the elementary school as well.

It is extremely encouraging, also, to find the nine conferences and the Committee of Ten, one hundred teachers in all, in cordial agreement on many points of fundamental

importance. It is laid down, for instance, that no school subject should be taught in different ways to pupils who are going to college, to a scientific school, or to neither. If a pupil studies algebra or Latin, he should study it in the same way and to the same extent, during the time that he studies it, whether he is to enter Harvard or Yale, the Institute of Technology or the Rensselaer Polytechnic, or a merchant's office. On this point there is not a single dissenting voice. This one principle, if followed in the secondary schools, would immensely simplify their programmes and decrease the cost of their instruction.

The conferences agree, again, — excepting the Greek conference, the members of which had no reason for dealing with the subject, — that much work now taken up for the first time in the secondary school should be begun in the elementary school. For instance, one foreign language, history, algebra, and geometry are all capable of excellent use in the upper grades of elementary schools, and are already to be found there

in some of the more progressive cities of the country. The discussion on shortening and enriching the school curriculum, begun so recently, has already accomplished this.

The four conferences on language study and the three on natural science also agree among themselves as to the best methods of teaching. The former are a unit in desiring reading aloud in the language to be studied, the association of writing the language with translating from it, and the careful correction of translation, in order to secure in it the use of accurate and idiomatic English. The three scientific conferences come to a like agreement. They all believe that laboratory teaching is better than text-book teaching, and that the inspection of laboratory notebooks should be combined with written examinations, in testing a pupil's attainments.

The last, and most important, point of agreement among the conferences relates to the coördination of the studies in the curriculum. Neither the Committee of Ten nor the conferences contained a single person

who may be classed as a follower of the Herbartian educational theory, as exemplified by Ziller, Stoy, and Rein; yet by purely empirical methods the committee and the conferences arrive at a striking confirmation of one of the main doctrines of the Herbartian school, the coördination and correlation of studies. The scientific conferences show how the practice of writing accurate descriptions of observations and experiments contributes to the acquirement of a clear, simple English style. The conference on history wish to have that subject always associated with the study of geography, and the conference on the latter subject agree with them. The English conference explicitly ask that the study of the mother tongue and its literature be supplemented by that of the history and geography of the English-speaking race.

Taking these points alone, and passing over the numerous questions of detail on which the conferences pronounce, we have a considerable body of educational doctrine that is sound to the core, and that applies

to one school and to one stage of education as well as to another. Principals of schools, teachers of special subjects, and students of education will examine and weigh carefully every recommendation of the conferences, however minute; but the general reader and the intelligent parent wish most of all to gain an idea of what is unanimously, or even generally agreed upon. That question is substantially answered in the foregoing summary of the conference reports.

To study carefully the several conference reports, and to base upon them a general recommendation to the country, was the more difficult part of the task of the Committee of Ten. Any recommendation, to be tangible, must of course include a schedule showing how a school can arrange its programme so as to carry out the ideal of the committee. Four such schedules, or tables, are given by the committee; and while not perfect, — what school programme is? — they are extremely suggestive. The first table is not a programme, but an ordered arrangement, by topics

and school years, of all of the recommendations of the nine conferences. It offers material for an indefinite number of programmes. The second table is given to test the practical character of the conference recommendations. It includes them all in a four years' course, adding to each subject the number of weekly periods to be allotted to it. When this is done, it is found that for three-fourths of the course much more is demanded than any one pupil can follow, but — and this is the important point — not more than a school can teach. The necessary consequence is that there must be in the high school a choice or election of studies. In a small school, this choice will be made by the principal, who will say: "With the staff at my command, I can teach only five subjects of those proposed by the conferences, in the manner recommended. My school shall therefore be limited to those five." Larger and richer schools can teach more, or perhaps all of the subjects; and then the choice among them will be made by the pupil. This choice is necessary, as the Committee of Ten is careful to point out, to thoroughness, and to the

imparting of power as distinguished from mere information; for any large subject whatever, to yield its training value, must be pursued through several years, from three to five times a week.

The committee's third table is based on the second, but uses four as the standard number of weekly periods of study for each subject, except in the first year of a new language. Further reference to this table is unnecessary.

The fourth table submitted is of great interest, for in it the committee, after due deliberation, makes its own selection out of all the material and suggestions supplied by the conferences, and submits specimen standard programmes of secondary school work. It would be a grave error to dismiss this question of a specific programme as one involving mere detail that might be left to any principal or superintendent of schools. The Committee of Ten itself dissents strongly from that view; for it believes that to establish just proportions between the several subjects, or groups of allied subjects, it is essential that each principal subject shall be taught adequately and

extensively, and therefore proper provision for it must be made in the programme. As the committee says: "The method of estimating the amount of instruction offered in any subject by the number of recitation periods assigned to it each week for a given number of years or half years is in some respects an inadequate one, for it takes no account of the scope and intensity of the instruction given during the periods; but so far as it goes it is trustworthy and instructive. It represents with tolerable accuracy the proportional expenditure which a school is making on a given subject; therefore the proportional importance which the school attaches to that subject. It also represents, roughly, the proportion of the pupil's entire school time which he can devote to a given subject, provided he is free to take all the instruction offered in that subject. All experience shows that subjects deemed important get a large number of weekly periods, while those deemed unimportant get a smaller number. Moreover, if the programme time assigned to a given subject be insufficient, the value of that subject as training cannot be got,

no matter how good the quality of the instruction."

In framing the suggestive programmes, the Committee of Ten proceeded upon some general principles that are of great significance. In the first place, it endeavored to postpone to as late a period as possible the grave choice between a classical and what is generally known as a Latin-scientific course. Very frequently this choice determines a boy's future career, and it is important that it be made not only late in the school course, but after excursions into all the principal fields of knowledge have discovered the boy's tastes and exhibited his qualities. A second principle is that each year of the secondary school course should be, so far as may be, complete in itself, and not made wholly dependent on what is to follow. This is essential, because thousands of pupils are obliged to leave the high school after one or two years, and during that time linguistic, historical, mathematical, and scientific subjects should all be presented to them in an adequate manner. It is also important that provision be

made so that each subject may be treated in the same way for all pupils who take it; that time enough be given to each subject to gain from it the training it is able to give; that the different principal subjects be put upon an approximate equality in the matter of time-allotment; that all short courses given for purposes of information only be excluded; and that the instruction in each of the main lines — namely, language, history, science, and mathematics — be continuous. With all of these principles in mind, the Committee of Ten framed the four specimen programmes given on the three following pages, the names by which they are designated being based on the amount and character of foreign language study in each.

In adopting twenty as the maximum number of weekly periods of school work, the committee had two qualifications in mind: first, that at least five of the twenty should be given to unprepared work; secondly, that laboratory subjects should have double periods whenever that prolongation is possible. Such subjects as music, drawing, and elocution, often found in secondary schools, are purposely omitted from

Year	I Classical. Three Foreign Languages (one Modern)		II Latin-Scientific. Two Foreign Languages (one Modern)	
1	Latin	5 p.[1]	Latin	5 p.
	English	4 p.	English	4 p.
	Algebra	4 p.	Algebra	4 p.
	History	4 p.	History	4 p.
	Physical Geography	3 p.	Physical Geography	3 p.
		20 p.		20 p.
2	Latin	5 p.	Latin	5 p.
	English	2 p.	English	2 p.
	German[2] [*or* French] begun	4 p.	German [*or* French] begun	4 p.
	Geometry	3 p.	Geometry	3 p.
	Physics	3 p.	Physics	3 p.
	History	3 p.	Botany or Zoölogy	3 p.
		20 p.		20 p.
3	Latin	4 p.	Latin	4 p.
	Greek[2]	5 p.	English	3 p.
	English	3 p.	German [*or* French]	4 p.
	German [*or* French]	4 p.	Mathematics	
	Mathematics		Algebra, 2 / Geometry, 2	4 p.
	Algebra, 2 / Geometry, 2	4 p.	Astronomy ($\frac{1}{2}$ year) and Meteorology ($\frac{1}{2}$ yr.)	3 p.
			History	2 p.
		20 p.		20 p.

[1] Weekly periods.

[2] In any school in which Greek can be better taught than a modern language, or in which local public opinion or the history of the school makes it desirable to teach Greek in an ample way, Greek may be substituted for German or French in the second year of the classical programme.

Year	I Classical Three Foreign Languages (one Modern)		II Latin-Scientific Two Foreign Languages (one Modern)	
4	Latin	4 p.	Latin	4 p.
	Greek	5 p.	English as in Classical, 2 additional, 2	4 p.
	English	2 p.	German [*or* French]	3 p.
	German [*or* French]	3 p.	Chemistry	3 p.
	Chemistry	3 p.	Trigonometry and Higher Algebra, or History	3 p.
	Trigonometry and Higher Algebra, or History	3 p.	Geology or Physiography ($\frac{1}{2}$ yr.), and Anatomy, Physiology, and Hygiene ($\frac{1}{2}$ yr.)	3 p.
		20 p.		20 p.

Year	III Modern Languages Two Foreign Languages (both Modern)		IV English One Foreign Language (Ancient or Modern)	
1	French [*or* German] begun	5 p.	Latin, or German, or French	5 p.
	English	4 p.	English	4 p.
	Algebra	4 p.	Algebra	4 p.
	History	4 p.	History	4 p.
	Physical Geography	3 p.	Physical Geography	3 p.
		20 p.		20 p.
2	French [*or* German]		Latin, or German,	
	English	2 p.	or French	5 or 4 p.
	German [*or* French] begun	5 p.	English	3 or 5 p.
	Geometry	3 p.	Geometry	3 p.
	Physics	3 p.	Physics	3 p.
	Botany or Zoölogy	3 p.	History	3 p.
		20 p.	Botany or Zoölogy	3 p.
				20 p.

Year	III Modern Languages Two Foreign Languages (both Modern)		IV English One Foreign Language (Ancient or Modern)	
3	French [*or* German]	4 p.	Latin, or German, or French	4 p.
	English	3 p.	English as in others, 3; additional, 2	5 p.
	German [*or* French]	4 p.	Mathematics: Algebra, 2; Geometry, 2	4 p.
	Mathematics: Algebra, 2; Geometry, 2	4 p.	Astronomy ($\frac{1}{2}$ yr.) and Meteorology ($\frac{1}{2}$ yr.)	3 p.
	Astronomy ($\frac{1}{2}$ year) and Meteorology ($\frac{1}{2}$ yr.)	3 p.	History as in Latin-Scientific, 2; additional, 2	3 p.
	History	2 p.		
		20 p.		30 p.
4	French [*or* German]	3 p.	Latin, or German, or French	4 p.
	English as in Classical, 2; additional, 2	4 p.	English as in Classical, 2; additional, 2	4 p.
	German [*or* French]	4 p.	Chemistry	3 p.
	Chemistry	3 p.	History	3 p.
	Trigonometry and Higher Algebra, or History	3 p.	Trigonometry and Higher Algebra	3 p.
	Geology or Physiography ($\frac{1}{2}$ yr. and Anatomy, Physiology, and Hygiene ($\frac{1}{2}$ yr.)	3 p.	Geology or Physiography ($\frac{1}{2}$ yr.), and Anatomy, Physiology, and Hygiene ($\frac{1}{2}$ yr.)	3 p.
		20 p.		20 p.

the programmes, it being left to local authorities to determine how they shall be introduced.

Inspection will show how carefully the programmes have been framed with reference to being carried out economically in a single school. With few exceptions, the several subjects occur simultaneously in at least three of the four programmes, and with the same number of weekly periods allotted to them. From a practical point of view this is a most important arrangement. Some minor difficulties were caused by adhering to the rule laid down by all of the language conferences, namely, that two foreign languages should not be begun at the same time, and by limiting the course to four years. A six years' programme would be far easier to construct.

Critical examination of the committee's programmes discloses grave defects in the most important of all, the classical, — which does not provide continuous study in science, for that great department is not represented in the third year at all. History is similarly interfered with, and there would also be a break in the mathematical course if the option given in

the fourth year were exercised in favor of history. The difficulty lies, I believe, in trying to include history in a four years' classical course. The classics themselves teach history in an admirable way, if the instruction is good. A wealth of historical knowledge is grouped about the reading of Cæsar, Cicero, and Virgil, Xenophon and Homer, the usual secondary school authors; and in those which are themselves professedly historical, a great gain would follow from more thorough study of the subject matter. If history, then, were dropped entirely from this programme, a modern language could be begun in the first secondary school year, the English course extended in the second year, and no break in the science instruction would be necessary.

Defects in the other programmes exist, but they are not so glaring as those just pointed out in the classical. For instance, there is no continuity in the history course of the Latin-scientific or modern language programme; and in both of the last-named there would be a break in the mathematics course also, should the pupil exercise his option in favor of history.

The following table discloses at a glance in what relation the four programmes stand to each of the four great divisions of secondary school study. The figures in the several columns represent the total number of weekly periods given during the entire four years, in each of the four programmes, to the main subjects. No scheme can be called radical that proposes to give 52.5 per cent of all secondary education whatsoever to language study, or, adding history, 62.8 per cent to the so-called humanities. That this would be the result of following the committee's recommendations the table shows.

	Classical	Latin-Scientific	Modern Languages	English	Total
Language	50	42	42	34	168
History.	7	6	6	14	33
Mathematics	14	14	14	14	56
Natural Science . . .	9	18	18	18	63
Total	80	80	80	80	320

This table brings out other interesting facts. It shows how closely allied are the Latin-

scientific and modern language courses, and how small a part natural science is to play in the revised scheme, after all. The one-quarter of the whole school time that the scientific conferences asked to have given to natural science is not so given in any of the programmes, though it is closely approached in three of them.

Although the report itself contains no reference to European experience or practice, it will be interesting to compare the committee's recommendations with the programmes of European secondary schools. Take, for example, the Prussian gymnasium, the tertia and secunda of which nearly correspond to the American secondary school years, and the French lycée, where the classes known as cinquième, quatrième, troisième, and seconde are in about the same relation. The division of time in these institutions is shown on the following page.

PRUSSIAN GYMNASIUM

Subjects	Unter-Tertia	Ober-Tertia	Unter-Secunder	Ober-Secunder	Total
Religion	2	2	2	2	8
German	2	2	3	3	10
Latin	7	7	7	6	27
Greek	6	6	6	6	24
French	3	3	3	2	11
History and Geography	3	3	3	3	12
Mathematics	3	3	4	4	14
Natural History, Physics, and Chemistry	2	2	2	2	8
Total	28	28	30	28	114

FRENCH LYCÉE

Subjects	Cinquième	Quatrième	Troisième	Seconde	Total
French	3	2	2	3	10
Latin	8	5	5	5	23
Greek	2[1]	6	5	5	18
Other Living Language	1½	1½	1½	2½	7
History	1½	1½	1½	1½	6
Geography	1	1	1	1	4
Mathematics / Natural Science	1½[2]	1½	3	1½	7½
Total	18½	18½	19	19½	75½

[1] Greek is not begun until the second half of the year. Previous to that time ten hours weekly are given to Latin.

[2] This time is divided between observation lessons on rocks and plants and arithmetic.

It is seen at once that the German boy is called upon for far more work, measured in terms of time, than the American boy; though the difference is not so great as it seems, for "learning lessons" out of school is not so prominent a feature in German as it is in American education. The French boy, under the existing revised programme, does about what is to be expected of the American, but his time is differently distributed. The French device for preventing "scrappy" courses from becoming intolerable is to assign them few but long periods. For example, history, in the lycée, is taught but once a week, but then it occupies an hour and a half consecutively, so that much more is accomplished than in two periods of forty-five minutes each. As a rule, the recitation or lesson periods in France are considerably longer than those that are usual elsewhere.

In spite of the differences between them, however, it is clear that the proposed American classical programme is not very unlike those in vogue on the continent of Europe. Were the comparison extended to the other pro-

grammes, — the Latin-scientific, the modern language, and the English, — a similar relation to the French and German programmes of like character would be found to exist. The higher classes of the gymnasium and the lycée have still a great advantage over the American secondary school in the fact that the work leading up to them is carefully organized and developed, and may be depended upon. The American grammar school, or better, the upper grades of the elementary school, on the contrary, is only here and there efficient. For two generations the so-called grammar school has conspired with the lower or primary grades to retard the intellectual progress of the pupil in the interest of "thoroughness." The arithmetic of many puzzles, the formal grammar, and the spelling-book with its long lists of child-frightening words have been its weapons. Slowly and with a struggle these are being wrested from it. New knowledge is being introduced to illustrate and illuminate the old, and higher processes to explain and make easier the lower. All this promotes true thoroughness; and also allows the child's mind to

grow and develop as nature intended it should, and as it often does in spite of the elementary school, not because of it. Every year, therefore, pupils are reaching the high school better prepared for its peculiar work; and it is not unreasonable to hope that in ten years the secondary school may assume, in the case of its youngest pupils, an ability to use simple English correctly, a knowledge of the elements of algebra and geometry, and of some epoch or movement in history. Perhaps even the study of a foreign language will have been begun.

From the standpoint of the elementary school, therefore, the Committee of Ten is not unreasonable in its ideal, nor have the conferences proposed anything that is impracticable. The same is true when the report is viewed from the standpoint of the colleges, though here, too, reform and improvement are necessary. As is well known, college admission examinations not only differ widely among themselves, but vary from year to year. Perhaps no one of them is too high to admit of a well-taught boy entering college at seventeen,

but many are so low that the same boy ought to pass them successfully at fourteen, or even earlier. The colleges have been injuring higher education in America by giving their own idiosyncrasies as to admission examinations free scope, instead of agreeing together upon a policy.

I do not mean that the admission examinations of all colleges should be uniform; that is not necessary. But, to quote from the report, "it is obviously desirable that the colleges and scientific schools should be accessible to all boys or girls who have completed creditably the secondary school course." If the recommendations of the Committee of Ten are carried out, — and there is every reason to hope that they will be, — the "completion of a secondary school course" will have a definite meaning, and the colleges can deal with it accordingly. The graduate of a secondary school will have had four years of strong and effective mental training, no matter which of the four school programmes he has followed, and the college can safely admit him to its courses. This single step will bring about

the articulation of the colleges and scientific schools, on the one hand, with the secondary schools, on the other, — an articulation that has long been recognized as desirable for both classes of institutions and for the country.

The question will naturally arise, — it arose in the minds of the Committee of Ten, — Can the improvements suggested be effectually carried out without a very considerable improvement in the training of the teachers who are to do the work? To this question but one answer can be given, and that in the negative. But, on the other hand, the opportunities now available for the higher training of secondary school-teachers are many times as numerous and as valuable as they were a decade ago. It is true that the hundreds of normal schools are accomplishing very little in this direction, even the best of them; but the colleges and universities, where the mass of secondary teachers will always be educated and trained, have now awakened to a sense of the responsibility that rests upon them. Harvard and Yale, Columbia and Cornell, Michigan and Illinois, Colorado and Stanford, and many others have

organized special departments for the study of education, and one or two of them are manned and equipped more thoroughly than any similar departments in Europe. The effect of this great expansion of activity in the study of education cannot fail to be widely felt within the next few years. The colleges have needed, and some of them still need, an enlargement of sympathies, as do the normal schools. The colleges have focused their attention and energy too largely upon their own special work, and have paid no heed to what was going on about and beneath them. The normal schools have thought it sufficient to study more or less psychology, and to expound more or less dubious "methods" of teaching, and have neglected the larger field of genuine culture and the relative values of studies. Better apparatus and more teachers will not of themselves lift the college or the normal school out of its rut. Only a full appreciation of the relations of these institutions to the work of education as a whole can do that.

Finally, what is the effect of this prolonged and earnest investigation upon that

ideal of a liberal education that has so long been held in esteem among us? It will not have escaped notice that only one of the committee's four programmes makes a place for the study of Greek, while one excludes both Greek and Latin. It is true that these are recommended as ideal arrangements, and that it is expressly stated in the report to be the unanimous opinion of the committee that, "under existing conditions in the United States as to the training of teachers and the provision of necessary means of instruction, the two programmes called respectively modern languages and English must, in practice, be distinctly inferior to the other two." Nevertheless, it seems clear that the committee has been able to disentangle the real from the accidental in our conception of a liberal education, and has put the former forward in all its strength. It has not forgotten the precept of Aristotle, that "there are branches of learning and education which we must study with a view to the enjoyment of leisure," and that "these are to be valued for their own sake." "It is evident, then," the philosopher continues, "that there

is a sort of education in which parents should train their sons, not as being useful or necessary, but because it is liberal and noble. Whether this is of one kind only, or of more than one, and if so, what they are and how they are to be imparted, must hereafter be determined." It is just this determination that the committee has made; and it is a determination that each age, perhaps each generation, must make for itself. Between a diminution of the time given to classical study and a relapse into quasi-barbarism there is no necessary relation of cause and effect. May not the American say, as did Paulsen of his countrymen, that "idealism generally, if we will use this word of so many meanings, is a thing which is not implanted from without, but grows from within, and that, in particular, the idealism in the character of the German people has deeper roots than the Greek and Latin lessons of our gymnasia"? Is it not true that the other elements of culture must be given their proper place in secondary education, and that gain rather than loss will follow from so doing?

Lowell's hope, expressed so eloquently at

the Harvard Anniversary, will not be disappointed by the recognition of a broader basis for human culture. Every one may accept the recommendations of the Committee of Ten, and still say with him: "I hope the day may never come when the weightier matters of a language, namely, such parts of its literature as have overcome death by reason of their wisdom and the beauty in which it is incarnated, such parts as are universal by reason of their civilizing properties, their power to elevate and fortify the mind, — I hope the day may never come when these are not predominant in the teaching given here. Let the Humanities be maintained undiminished in their ancient right. Leave in the traditional preëminence those arts that were rightly called liberal; those studies that kindle the imagination, and through it irradiate the reason; those studies that manumitted the modern mind; those in which the brains of finest temper have found alike their stimulus and their repose, taught by them that the power of intellect is heightened in proportion as it is made gracious by measure and symmetry. Give us science, too, but give first of

all, and last of all, the science that ennobles life and makes it generous. . . . Many-sidedness of culture makes our vision clearer and keener in particulars. For after all, the noblest definition of Science is that breadth and impartiality of view which liberates the mind from specialties, and enables it to organize whatever we learn, so that it becomes real Knowledge by being brought into true and helpful relation with the rest."

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